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A CHECK LIST OF THE SCOLYTIDAE AND PLATYPODIDAE (COLEOPTERA) OF CEYLON WITH DESCRIPTIONS OF NEW SPECIES AND BIOLOGICAL NOTES

By Karl E. Schedl

(*Lienz, Osttirol, Austria*)

Manuscript received 11th April, 1958

(Read 6th May, 1959)

[Communicated by Dr. K. Mellanby, C.B.E.]

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Introduction

During recent years Dr. E. Judenko of the Tea Research Institute of Ceylon has carried out some very interesting experiments on the shot-hole borer of tea (*Xyleborus fornicatus* Eichhoff) in plantations in the low country of this island, mainly in the Millawitiya Estate in Ratnapura (with elevations from 300–600 feet), but also in the Denawake Group (400–1200 feet), the Hedgefield Estate (above 1500 feet), the Noragalla Estate (about 700 feet) and the Allupolla Group (700–2500 feet). In two sets of these experiments, involving shaking beetles from tea bushes and investigating the air migration of the borer by using sticky frames, the intention was to collect all Coleoptera of approximately the size of *X. fornicatus*. The material obtained in this way was enormous, comprising not only beetles of this size but also practically all the smaller species of Scolytidae, down to the minute *Hypothenemus eruditus* Westwood. All the beetles were passed to me for identification.

A preliminary inspection of this material showed that *X. fornicatus* represented a very small proportion of the total beetles collected and that a great number of other Scolytidae and Platypodidae were present. Although Dr. Judenko was interested in obtaining information on *X. fornicatus* only, I took the opportunity to study the entire material in detail, and found that it comprised no less than 81 different species, 24 of which were new to science. The work of identification, on the other hand, made it necessary to study in detail

all the species so far recorded from Ceylon and to draw up a check list of Scolytidae and Platypodidae from this island.

At the present time, including the material from Dr. Judenko's experiments, 109 species belonging to 22 genera are known from Ceylon of the family Scolytidae, and of the Platypodidae 15 species belonging to four genera. The seed infesting species of the genera *Coccotrypes* and *Poecilips*, very numerous in Dr. Judenko's collection, may have their hosts in the shade trees planted between the tea bushes, e.g. *Albizzia moluccana* Miq., *Grevillea robusta* and *Gliricida maculata* H.B.K. (*Gliricida sepium* Steud). The majority of the other species certainly originate from the nearby forested areas from which they migrate over the tea plantations during their flight period.

Dr. Judenko will report elsewhere the results of his work on *Xyleborus fornicatus*. The present paper deals with all Scolytidae and Platypodidae collected in Ceylon. For the sake of convenience the reference to the original description (as far as possible for both sexes), the synonyms (also with their references), the general distribution and to a certain extent, the hostplants in surrounding countries, are given for each species. As far as Ceylon itself is concerned, an attempt has been made to give exact localities where the species have been found, the references to various reports and all the hosts recorded. The type localities are given for each species, and always exactly in the language and spelling of the original description.

A large number of species of great economic importance such as *X. mascarensis* Eichh., *X. morigerus* Blandf., *X. morstatti* Hag., *X. perforans* Woll. and *X. similis* Ferr. extend into Africa and are treated in great detail in a monograph on the Scolytoidea of Africa, to be published elsewhere. This monograph will help in similar investigations in Ceylon.

Among the first Scolytidae and Platypodidae described from Ceylon are those of V. Motschoulsky published in 1863 and 1866 in Volumes 36 and 39 of the *Bull. Soc. Imp. Nat. Mosc.* These originated mainly from " Des Montagnes de Nura-Ellia ". As the types of the following species are lost, their descriptions too brief for identification, and no further records exist, it is only possible to record them.

These doubtful species are :

Anodius distinctus Motsch.
Anodius piceus Motsch.
Hylesinus sericeus Motsch.
Hypoborus cinereotestaceus Motsch.
Olonthogaster nitidicollis Motsch.
Olonthogaster nudifrons Motsch.
Phloiotribus subquadratus Motsch.
Phloeotrogus crassiusculus Motsch.
Platypus cordatus Motsch.
Platypus luniger Motsch.
Platypus rotundicauda Motsch.
Tomicus adusticollis Motsch.

More recent Ceylonese records of doubtful value, probably because of incorrect identifications, and of which no specimens are now available for checking, are the following :

Xyleborus amputatus Blandf. Ceylon. Speyer, E. R., 1923, *Bull. ent. Res.* **14** : 21.

Xyleborus compactus Eichh. Green, E. E., 1912, *Trop. Agriculture, Trin.* **38** : 39 ; Speyer, E. R., 1923, *Bull. ent. Res.* **14** : 16–17, 22, figs. 4 and 5.

Xyleborus lewisi Blandf. Speyer, E. R., 1923, *Ibid.* **14** : 19, 21.

Xyleborus scabripennis Blandf., *loc. cit.* : 21. Said to occur in the Northern dry zone in *Mimusops hexandra*.

Xyleborus tachygraphus Zimm., *loc. cit.* : 21 (an American species).

Xyleborus truncatus Er., Ceylon, in dead stems of *Albizzia moluccana*. Green, E. E., 1912, *Trop. Agriculture, Trin.* **38** : 39 ; Speyer, E. R., 1923, *Bull. ent. Res.* **14** : 21. *X. truncatus* is a strictly Australian species which I have never seen from the Indomalayan region. Probably this record should apply to *X. mancus* Blandf. or an allied species.

The species recorded in the following check list certainly represent a very small part, probably only 20 to 30 per cent., of the actual Scolytid and Platypodid fauna of Ceylon. With the exception of Dr. Judenko's material nearly all the earlier species were taken by chance during general collecting. It is known that a large number of shot-hole borers and timber beetles of these two families are continually threatening timber production, attacking especially freshly cut logs ; an inventory search of Scolytidae and Platypodidae connected with some biological investigations as the basis for future control measures could be undertaken with advantage.

During the course of this study I was able to establish quite a number of new synonyms, mainly by comparing the types. To simplify the use of this check list, a list of the valid species of Scolytidae and Platypodidae of Ceylon is given (pp. 517–18) and, separately (pp. 519–20), an alphabetical list of the synonyms and species dealt with in this paper but not endemic to this island.

A. Family SCOLYTIDAE

1. Subfamily Hylesinae

Craniodicticus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 317.

Craniodicticus mucronatus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 317–18.

Type locality Ceylon : Dikoya, Hadley Tea Estate, 3800–4200 feet (*George Lewis*) ; taken in one of the creepers known as " jungle-rope ".

Known from the type specimens only ; not represented in Dr. Judenko's collection.

Hylesinus Fabricius

Fabricius, 1801, *Systema Eleutheratorum* **2** : 390.

Hylesinus despectus Walker

Walker, 1859, *Ann. Mag. nat. Hist.* (3) **3** : 261.

Hylesinus granulifer Motschoulsky, V., 1863, *Bull. Soc. Nat. Mosc.* **36** : 516.
Hylesinus scobipennis Chapuis, 1869, *Synopsis des Scolytides* : 30.
Hylesinus javanus Eggers, 1923, *Zool. Meded.* **7** : 135.
Hylesinus similis Eggers, *loc. cit.* : 136.

Type localities

H. despectus CEYLON: Balangoda, 1700 feet (*George Lewis*).
H. granulifer CEYLON: des Montagnes Nura-Ellia.
H. javanus JAVA: Buitenzorg.
H. similis SUMATRA: Mte. Singalang, Luglio 1878 (*O. Beccari*).

H. despectus seems to be endemic in the Indo-malayan region and has been recorded from Ceylon, India (Assam, Bengal, Madras, United Provinces, Bombay), Burma, Malaya, Tonkin, the Philippine Islands, Sarawak, Buru Island, Java, Sumatra, Engano, Batchian, Celebes and New Guinea. It is known to breed in *Anthocephalus cadamba*, *Buchanaia sessilifolia*, *Ficus bengalensis*, *F. mysorensis*, *F. religiosa*, *F. tjakela* and *Sterculia macrophylla* in southern India, in *Ficus fistulosa* in Java, in *Ficus sp.* in Luzon, and in *Shorea leprosula* in Malaya.

The species is represented in Dr. Judenko's collection by a single specimen taken at the Millawitiya Estate on 8.iv.57. I have seen another specimen in the collection of the Forest Research Institute, Dehra Dun, originating from CEYLON: Badagamuwa, Kurunegala, 500 feet, 23.xii.1934, ex *Artocarpus integrifolia* F.R.I. (*Gauri Dutt*).

Diamerus Erichson

Erichson, 1836, *in* Wiegemann, 1836, *Arch. Naturgesch.* **2** (1) : 57.

Acanthurus Eichhoff, 1886, *Notes Leyden Mus.* **8** : 24.
Lissoclastus Schaufuss, 1905, *Insektenbörse* **1905** : 71.

Diamerus curvifer (Walker)

Walker, 1859, *Ann. Mag. nat. Hist.* (3) **3** : 261 (*Hylesinus*).

Acanthurus spinipennis Eichhoff, 1886, *Notes Leyden Mus.* **8** : 24.

Type localities

D. curvifer CEYLON.
A. spinipennis SUMATRA, Soepajang; Sum. Exp.; Boenga mas.; (*I. C. van Hasselt*).

D. curvifer has so far been recorded from Ceylon, India, Sumatra, Java, the Philippines, Amboina (new record) and Queensland in Australia. Host-plants have been reported by C. F. C. Beeson from India (*Artocarpus integrifolia*, *Ficus bengalensis*, *F. mysorensis*, *F. religiosa* and *F. rumphii*) and by Schedl (1954) from Java (*Symplocos* sp. div. and *Artocarpus elastica*). It is not represented in Dr. Judenko's collection but I have seen a specimen from Kandy in Ceylon.

Phloeosinus Chapuis

Chapuis, 1869, *Synopsis des Scolytides* : 36.

Hylurgulus Eggers, 1927, *Treubia* **9** : 392.

Phloeosinus detersus Chapuis

Chapuis, 1869, *Synopsis des Scolytides* : 38.

Type locality CEYLON.

P. detersus is known only from Ceylon. Blandford reported it from Dikoya, Hadley Tea Estate, 3800–4200 feet (*George Lewis*). The same author suspected synonymy with *Olonthogaster nitidicollis* Motsch., but did not make any definite statement.

Phloeosinus concinnulus (Walker)

Walker, 1859, *Ann. Mag. nat. Hist.* (3) **3** : 261 (*Hylurgus*).

Type locality CEYLON.

This species was described by Walker as belonging to the genus *Hylurgus* Latr., but Blandford, after having seen the type, referred it to *Phloeosinus* Chap. It has never been reported since the original description.

Phloeosinus ceylonicus sp. n.

Male.—Piceous black when mature, 1·5 to 1·7 mm. long, 2·1 times as long as wide. (Through the kindness of Mr. R. T. Thompson, the new species has been compared with *P. concinnulus* Walker) Smaller than *P. concinnulus*, the pronotum more densely punctured, and the tubercles of the elytra decidedly larger, extending more widely towards the base.

Front convex, smooth and polished in the centre, very densely granulate-punctate on sides and towards vertex, around the polished space, with pale yellow scale-like hairs sometimes hiding the centre. Antennal club short-oval, the sutures merely indicated.

Pronotum much wider than long (22 : 17), widest near base, posterolateral angles rounded, sides obliquely narrowed towards the rather narrowly rounded apex, subapical constriction distinct; disc convex, rather densely covered with medium sized punctures, median line impunctate on basal half; pubescence scale-like, very small and inclined. Scutellum not visible.

Elytra distinctly wider (23·5 : 22·0), and 1·6 times as long as the pronotum, sides parallel in basal half, broadly rounded at apex, declivity short and rather strongly convex; surface striate-punctate, the strial punctures rather indistinct throughout, striae shallow near base, deeper behind, all interstices somewhat convex, less so near base, each with a series of setose tubercles regularly arranged but gradually reduced in size towards base, the setae short, rather stout and erect.

Females with front entirely granulate-punctate, with a very short longitudinal carina below, tubercles on second interstice of declivity considerably reduced.

Types in Collection Schedl.

Locality CEYLON: Millawitiya Estate, 23.x, 19.xi.1956, 26.ii and 8.v.1957; Denawake Group, 8–16.ii.1957 (all *E. Judenko*).

Hyorrhynchus Blandford

Blandford, 1894, *Trans. ent. Soc. Lond.* **1894** : 58.

Hyorrhynchus pilosus Eggers

♀ Eggers, 1936, *Tijdschr. Ent.* **79** : 81.
♂ Schedl, 1954, *Philipp. J. Sci.* **85** : 144.

Type locality

♂♀ JAVA: Salatiga, 600m., 1922 (*L. G. E. Kalshoven*).

This species has also been reported from JAVA : Buitenzorg, and MALAYA : Kelantan, Pulai Chondong. Other specimens I have seen originated from the FIJI ISLANDS : Belt Road, 50 miles W. of Suva, 26.vii.1938 (*E. C. Zimmerman*).

In Dr. Judenko's collection it was represented from three localities, having been rarer on the Denawake Group and the Hedgefield Estate, rather common from August 1956 until October 1957 in the Millawitiya Estate, and without seasonal preference.

2. Subfamily XYLOCTONINAE

Scolytomimus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 319.

Scolytomimus dilutus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 320.

Type locality CEYLON : Bogawantalawa, 4900–5200 feet (*George Lewis*).

This very interesting species has also again been reported by Schedl (1950, *Tijdschr. Ent.* **93** : 53) from CEYLON : Palugama, Amuradhapura, 250 feet, 29.xii.1934, ex *Mimusops hexandra* F.R.I. (*Gauri Dutt*), from a specimen bearing a label *Xyloctonus mimusops* Beeson *in litt.* (*nomen nudum*). In the collection of the Forest Research Institute, Dehra Dun, there are two specimens from Pithoragarh (Kumaon), Northern India, collected by B. D. Joshi in *Bassia butyracea* on 8.v.1948. On the Millawitiya Estate a single specimen was taken on the sticky traps on 8.iv.1957.

3. Subfamily IPINAE

Erioschidias Schedl

Schedl, 1938, *Trans. R. Soc. S. Aust.* **62** : 42.

Erioschidias coriaceus sp. n.

In all three specimens elytra dirty yellowish, pronotum and head pitchy black, 1·4 mm. long, 2·5 times as long as wide. Allied to *E. setistriatus* Schedl, but smaller, stouter, marginal asperities of pronotum subequal in size and vestiture of elytra less scale-like.

Front convex, finely punctured, with short inconspicuous pubescence.

Pronotum slightly wider than long, appearing more slender on account of its shape, posterolateral angles rectangular, not rounded but closely attached to pronotum, sides subparallel in basal fourth, thence gradually incurved, apex moderately broadly rounded, subapical constriction merely indicated, apical margin armed with 4–6 subequal small asperities ; summit somewhat behind middle and moderately high, apical area very densely and rather finely granulate-asperate, this type of sculpture gradually becoming more simply granulate on basal area ; surface entirely opaque, pubescence extremely short and fine. Scutellum of moderate size, opaque.

Elytra only very little wider and twice as long as pronotum, sides parallel in basal half, gradually incurved behind, apex rather broadly rounded, declivity commencing in the middle, uniformly convex ; disc rather indistinctly striate-punctate, in one not quite mature specimen the striae more clearly defined, strial punctures rather coarse but greatly submerged, interstices very narrow but each with a row of fine punctures,

which bear very short semi-erect stiff setae ; declivity with striae more distinct, interstitial setae more robust but hardly longer.

Types in Coll. Schedl.

Locality CEYLON : Sabargamuva, Millawitiya Estate, 2–8.v. and 20–27.vi. 1956, 26.iii.1957 (*E. Judenko*).

Ptilopodius Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 7, 11.

Ptilopodius nitidus sp. n.

Pitchy black, 1 mm. long, 2·4 times as long as wide. A very shining and nearly glabrous species with no close relatives so far observed.

Front broadly convex, rather densely punctured, with very short erect pubescence.

Pronotum about as wide as long, posterolateral angles closely attached to elytra, rectangular and not visibly rounded, sides subparallel in basal half, apex uniformly and broadly rounded, the subapical constriction hardly noticeable, apical margin with a long series of subequal minute asperities ; summit in the middle, anterior area moderately convex, covered with 4 partly broken concentric ridges of small asperities becoming much smaller towards summit, basal area shining, with rather coarse punctuation. Scutellum small, triangular, shining.

Elytra slightly wider (15·5 : 14·5) and not quite twice as long as pronotum, sides parallel up to middle, apex broadly rounded, declivity commencing shortly behind middle, uniformly convex ; disc shining, with rows of rather coarse punctures in subimpressed lines, the interstices moderately wide and minutely punctulate ; declivity with strial punctures smaller, without impressed lines, interstices shining, each with a row of short erect setae originating from very small punctures.

Holotype in Coll. Schedl.

Locality CEYLON : Sabargamuva, Millawitiya Estate, 7.xi.1956 (*E. Judenko*).

Ptilopodius ceylonicus sp. n.

Female.—Pitchy black when fully mature, opaque, 1·3 mm. long, not quite 2·2 times as long as wide. Compared with *P. stephegynis* Hopk. this new species is much larger, the apex of the pronotum more broadly rounded, with the marginal asperities much smaller, the summit less marked and the elytra stouter and with a different type of vestiture.

Frons convex, transversely depressed anteriorly, with a slight indication of a longitudinal carina ; opaque, rather finely punctured, punctures sometimes replaced by minute granules.

Pronotum wider than long (17 : 14), widest at base, posterolateral angles rectangular and feebly rounded, sides subparallel on basal fourth, then gradually and broadly incurved, apex broadly rounded, subapical constriction indistinct, apical margin with 6 very fine pointed asperities of equal size ; summit in the middle, anterior area rather convex, opaque, minutely punctulate and with scattered very fine pointed asperities, basal area granulate-punctuate, pubescence very short and erect. Scutellum small, triangular.

Elytra feebly wider (18 : 17) and about 1·8 times as long as pronotum, sides parallel in basal two-fifths, apex broadly rounded, declivity commencing somewhat before the middle, obliquely convex ; disc striate-punctate, strial punctures rather coarse, closely placed, interstices narrow, uniseriately punctured near the base, the punctures replaced by minute granules, both bearing very short semi-erect hair-like setae near base and at sides, very stout pale yellowish scales on rest of surface.

Types in Coll. Schedl.

Locality CEYLON: Sabargamuva, Millawitiya Estate, 29.viii, 23.x, and 19.xi.1956 (*E. Judenko*).

Two specimens which are much smaller (1·1 mm. long), but with a very similar shape and sculpture, might represent the male of this species.

Cosmoderes Eichhoff

Eichhoff, 1878, *Stettin. ent. Ztg.* **34** : 387.

Cosmoderes monilicollis Eichhoff

Eichhoff, 1878, *Stettin. ent. Ztg.* **34** : 387.

Type locality INDIA ORIENTALIS.

The type of this species had been deposited in the Zoologische Museum, Hamburg, but was destroyed by bombing during the second world war. I examined this specimen in 1939 but it then had no antennae. *C. monilicollis* has been reported from Ceylon (one specimen in coll. Lewis) by Blandford (1894) and from Burma by Eggers (1925). Dr. Judenko's collection did not contain any specimens which could be referred to this species.

Cryphalomorphus Schaufuss

Schaufuss, 1891, *Tijdschr. Ent.* **34** : 12.

Lepicerus Eichhoff, 1878, *Ratio, descriptio, emendatio eorum Tomicinorum* : 501.
Letznerella Reitter, 1913, *Bestimmungstab. Borkenkaefer* : 68.
Ernoporides Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 34.
Neocryphalus Eggers, 1922, *Ent. Bl.* **18** : 169.
Negritus Eggers, 1923, *Zool. Meded.* **7** : 141.
Lepicerinus Hinton, 1936, *Ann. Mag. nat. Hist.* (10) **17** : 472.
Cylindrotomicus Eggers *i.l.* 1936, *Ann. Mag. nat. Hist.* (10) **17** : 633.

Cryphalomorphus cylindricus sp. n.

Pitchy black when mature, 1·36–1·43 mm. long, 2·4 times as long as wide. More closely allied to the type species, *C. jalappae* Letz., but stouter, the asperities of the anterior area of the pronotum arranged in concentric ridges and the vestiture of the elytral declivity somewhat more slender.

Front broadly convex, rather shining, densely granulate-punctate towards centre, with short pale yellow scale-like hairs.

Pronotum wider than long (18·8 : 16·5), widest near base, posterolateral angles somewhat rounded, sides subparallel on basal fourth, thence gradually incurved to very broadly rounded apex, apical margin with 6 very small pointed subequal asperities; summit in the middle, feebly transversely depressed behind, anterior area with 3–4 broken ridges of small asperities largely connected at their bases, basal area granulate-punctate in the middle, more simply and rather finely punctate at the sides, pubescence short, erect and inconspicuous. Scutellum small, triangular.

Elytra as wide and 1·7 times as long as pronotum, sides parallel on basal three-fifths, apex very broadly rounded, declivity commencing somewhat behind the middle, rather strongly convex; disc very densely and rather finely punctured, the strial punctures difficult to distinguish from those of the interstices except by vestiture, which consists of uniseriately arranged short erect setae near the base and of more spatulate and longer

scales on the declivity; lines with much shorter, finer and more inclined pale hairs present between these rows on the declivity.

Types in Coll. Schedl.

Locality CEYLON: Sabargamuva, Millawitiya Estate, 16.vii–19.xi.1956, 15.i–8.v.1957 (*E. Judenko*).

A very small specimen, 0·8 mm. long, with the pronotum more cylindrical and the anterior margin much more broadly rounded, might represent the male.

Cryphalomorphus opacus sp. n.

Pitchy black, opaque, 1·27 mm. long, 2·5 times as long as wide. Compared with *C. knabi* Hopk., this new species is smaller, stouter, the pronotum more slender and its anterior margin armed with 6 subequal closely placed small asperities.

Front strongly convex, densely and finely granulate-punctate below, minutely punctulate above, pubescence very short and restricted to the lower half.

Pronotum longer than wide (15·0 : 14·5), widest shortly behind middle, posterolateral angles rectangular and feebly rounded, sides subparallel on basal half, apex broadly rounded and armed with the set of asperities mentioned above; summit short in front of centre, feebly depressed behind, anterior area densely covered with very small asperities arranged in concentric rows, basal area densely and roughly punctured, pubescence inconspicuous. Scutellum of medium size, densely punctured.

Elytra as wide and 1·5 times as long as pronotum, sides subparallel in basal half, apex broadly rounded, declivity commencing shortly behind middle, uniformly convex; disc with a rather dense and fine punctuation so that strial punctures are difficult to distinguish from those of interstices, the latter giving rise to short erect yellow setae, the former with minute inclined hairs, visible only under high magnification; on the declivity the punctuation but feebly more distinct, the pubescence somewhat more conspicuous.

Holotype in Coll. Schedl.

Locality CEYLON: Sabargamuva, Millawitiya Estate, 26.viii.1957 (*E. Judenko*).

Cryphalomorphus ceylonicus sp. n.

Pitchy black, 1·0 mm. long, 2·3 times as long as wide. Somewhat similar to *C. indicus* Beeson, but much smaller, the pronotum with its anterior margin more narrowly rounded, distinctly depressed behind the summit, and sculpture of elytra more clearly defined.

Front convex, densely and very finely punctured in lower half, the punctures bearing minute short yellow hairs.

Pronotum as wide as long, widest in basal two-fifths where sides are subparallel, posterolateral angles closely attached to elytra, apex moderately broadly rounded, subapical constriction indicated, apical margin with several minute and closely placed asperities visible only under high magnification; summit in the middle, transversely depressed behind, anterior area obliquely convex, densely and irregularly covered with minute asperities, basal area densely and roughly punctured, pubescence inconspicuous. Scutellum small and shining.

Elytra as wide and 1·3 times as long as pronotum, sides parallel in basal two-fifths, apex moderately broadly rounded, declivity commencing in the middle, somewhat obliquely convex; disc striae-punctate, the striae hardly at all impressed near base, gradually deepening towards declivity, strial punctures increasing in size from base towards declivity, pubescence abraded in basal two-fifths of elytra; declivity with striae rather deep, strial punctures distinct, interstices (indistinctly punctured near base) densely and minutely granulate-punctate, each with a row of very short erect slender scales.

Holotype in Coll. Schedl.

Locality CEYLON: Sabargamuva, Millawitiya Estate, 15.i.1957 (*E. Judenko*).

Hypothenemus Westwood

Westwood, 1834, *Trans. ent. Soc. Lond.* **1**: 34.

Hypothenemus cassavaensis Schedl

♀ Schedl, 1938, *Ann. Mag. nat. Hist.* (11) **11**: 453–4.

♂ Schedl, 1941, *Rev. Zool. Bot. afr.* **34**: 397.

Hypothenemus striatulus Schedl, 1942, *Tijdschr. Ent.* **85**: 12–13.

Type localities

H. cassavaensis. ♀: UGANDA: Kampala. 17.viii.1933 (*H. Hargreaves*).
♂: *loc. cit.*; both in dead *Cassava* stem.

H. striatulus JAVA: Buitenzorg. 18.ii.1924 (*Kalshoven*): Walikoekoen, 1928 (*Verbeek*).

This species has so far been known only from Africa and Madagascar (Tsimbazaza-Tananarive, ex *Punica granatum* L.). Its synonym extends the distribution eastwards to Java, Samoa and the Fiji Islands. In Ceylon *H. cassavaensis* has been found on the Millawitiya Estate on 16.v., 3.vii and 9.x.1956.

Hypothenemus eruditus Westwood

Westwood, 1834, *Trans. ent. Soc. Lond.* **1**: 34–36.

Type locality ENGLAND: London, *ex* book-bindings (*E. Lumley*).

H. eruditus is distributed over the entire tropical and subtropical regions, extending northwards into the southern parts of the warm temperate zone. In view of its extremely wide distribution it has probably been described under more than two dozen different names, involving a greater synonymy than in any other species of the family Scolytidae. It is not necessary to repeat this synonymy here, especially as a complete list has been prepared for publication elsewhere.

During Dr. Judenko's experiments, this species was very common all the year around in the Millawitiya-, Noragalla-, and the Hedgefield estates, and was also taken in the Denawake Group. A single specimen in the British Museum was taken by A. Rutherford in Ceylon in 1919 *ex* tea.

Hypothenemus hispidus Eggers

Eggers, 1925, *Sborn. ent. Odd. nár. Mus. Praze.* **3**: 156 (♀).

Hypothenemus subvestitus Eggers, 1940. *Rev. Zool Bot. afr.* **33**: 232–3 (♀).

Type localities

H. hispidus: " Zwei Typen in Sammlung Eichhoff; die eine bezettelt: Birma, Dohrn; die andere: India orient., Dr. Helfer, leg. Nickel. Ich vermute,

daß auch die erstere von Helfer gesammelt ist und beide aus Tenasserim stammen. Eine dritte Cotype meiner Sammlung von den Philippinen (Insel Basilan), Sammler Böttcher ".

H. subvestitus : " Congostaat : Mosolo Kwenge (Kwango) ex " Motono ", leg. 1929 M^me^ Tinant. Eala, leg. Ghesquière in Früchten von *Ceiba* (Kapok); Bambesa leg. Vrydagh. Sierra Leone (Njala), leg. E. Hargreaves 1936 in Zweigen von *Berria amonilla*. Außerdem sah ich noch 2 Ex. aus Calicut (Indien) 29.vii.30, " in pericarp of *Liberia* berries ". 1 Ex. aus *Coffea robusta* von Ubangi (Binga) 7.iii.32 leg. H. E. Bredo."

In the meantime this species has been reported from the Côte d'Ivoire, Congo français and Tanganyika in AFRICA, and from MALAYA. On the Millawitiya Estate it was quite common throughout 1956 and was also found on the Hedgefield and Noragalla Estates and in the Denawake Group.

Hypothenemus myristiceae Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 14, 16 (♀).

Hypothenemus capitatis Beeson, 1935, *Bull. Bishop. Mus., Honolulu* **142** : 102–3.

Type localities

H. myristiceae JAVA : Buitenzorg, in *Myristica fragans*, March 1900 (*A. Zimmerman*).

H. capitatis MARQUESAS : Uapou, Hakehetau Valley, 1000 feet, 23.xii.1929, reared from dead wood (*Whitten*). UAHUKA : Vaipaee Valley, Putatauua (Putataua), 800 feet, 20.ix.1929, dead banana leaves (*Adamson*).

As Hopkins' diagnosis is very brief I prepared a redescription which was published in 1939 (*Tijdschr. Ent.* **82** : 31). Three specimens have been collected on the Millawitiya Estate between 7th June and 14th August, 1956. The figure given by Beeson in his original description does not correspond at all with a cotype in my collection.

Hypothenemus parcius Schedl

Schedl, 1957, *Ann. Mus. Roy. Congo Belge*, Ser. 8°, **56** : 49–50.

Type localities CONGO BELGE : Yangambi, 8.vii.1952, ex *Polyalthia suaveolens* Engl. et Diels (Annonaceae) (*Karl E. Schedl*) ; Mabikwam, 17.iv. 1953 (*J. M. Vrydagh*).

A number of specimens of *H. parcius* were collected on the Millawitiya Estate between 24.iv.1956 and 26.iii.1957.

Hypothenemus bicinctus sp. n.

Female.—Piceous brown, 1·6 mm. long, 2·6 times as long as wide. Easily recognised by the armature of the pronotum and the subacuminate elytral apex.

Front convex, subshining, minutely punctulate, regularly and moderate coarsely punctured, pubescence inconspicuous.

Pronotum as wide as long, posterolateral angles rectangular and feebly rounded, sides subparallel on basal two-fifths, apex semicircularly rounded, apical margin not visible when viewed from above, somewhat angulate, armed with two closely placed pointed

asperities in the middle and a similar asperity on each side but very distant from the median two : summit rather high, in the middle, anterior area strongly convex, with rather remotely placed pointed asperities on a finely punctulate ground sculpture, basal area shining, finely reticulate and with a rather fine punctuation ; pubescence short and hair-like in front, apparently (abraded) more scale-like behind. Scutellum small, densely punctured.

Elytra as wide and 1·7 times as long as pronotum, side parallel on basal two-fifths, thence rather obliquely narrowed, apex narrowly rounded, declivity commencing in the middle, obliquely convex ; dise regularly striate-punctuate ; the striae but feebly impressed, strial punctures comparatively small, each interstice with a regular row of very fine punctures bearing short semi-erect bristles, which become somewhat longer and more conspicuous on the declivity.

Types in Coll. Schedl.

Locality Ceylon : Millawitiya Estate, 15.i and 26.ii.1957 (*E. Judenko*).

Hypothenemus externe-dentatus sp. n.

Female.—Piceous brown, 1·4 mm. long, 2·3 times as long as wide. Well characterised by shape and armature of pronotum, unique so far in the genus.

Front subshining, convex, minutely punctulate, finely and regularly punctured, pubescence largely abraded.

Pronotum wider than long (17 : 15), posterolateral angles rectangular and feebly rounded, sides subparallel, feebly divergent in basal fourth, thence obliquely narrowed, apex broadly rounded, appearing transverse on account of the four asperities on each side, which are largest on the anterolateral angles, decreasing in size towards the median pair ; summit rather high, anterior area strongly convex, irregularly covered by small asperities, basal area densely granulate-punctuate ; pubescence largely abraded. Scutellum very difficult to see.

Elytra but very feebly wider and 1·7 times as long as pronotum, sides parallel on basal half, broadly rounded at apex, declivity commencing shortly behind the middle, regularly convex ; disc striate-punctate, striae of moderate depth, strial punctures rather coarse, interstices moderately wide, minutely reticulate, without distinct punctuation ; declivity more shining, punctuation somewhat finer but still distinct ; pubescence negligible.

Type in Coll. Schedl.

Locality Ceylon : Millawitiya Estate, 29.v–6.vi.1956 (*E. Judenko*).

Hypothenemus mesoleius sp. n.

Female.—Piceous brown, 1·1 mm. long, 2·3 times as long as wide. Near *H. mauiensis* Schedl, but easily distinguished from it by the somewhat smaller size, the more oblique elytral declivity and, most clearly, by the type of vestiture.

Front convex, subshining, minutely punctulate, rather finely granulate-punctate, pubescence inconspicuous.

Pronotum wider than long (15 : 12), posterolateral angles closely attached to elytra, feebly rounded, sides broadly curved on basal two-fifths, thence more strongly incurved, apex moderately broadly rounded, apical margin armed with 4–6 small pointed rather remotely placed asperities ; summit rather high, in the middle, anterior arc strongly convex, irregularly covered with small pointed asperities, basal area densely granulate-punctuate ; pubescence short and more hair-like in front and on sides, more scale-like and inclined behind. Scutellum indistinct.

Elytra very feebly wider and nearly twice as long as pronotum, sides parallel on basal two-fifths, thence feebly incurved, apex rather narrowly rounded, declivity commencing in the middle, obliquely convex ; disc finely striate-punctate, the striae very feebly impressed, strial punctures fine and each bearing a very short pale yellow inclined hair,

interstices moderate in width, somewhat finely reticulate and each with a row of regularly placed setae, appearing as short fine bristles near the base, more like clavate hairs on the declivity.

Types in Coll. Schedl.

Locality CEYLON: Millawitiya Estate, between 27.vi and 29.viii.1956 (*E. Judenko*).

Cryphalus Erichson

Erichson, 1836, *in* Wiegemann, *Arch. Naturgesch.* **2**: 61.

Cryphalus brevisetosus Schedl

♀ Schedl, 1943, *Ent. Bl.* **39**: 36.
♂ Schedl, 1951, *Philipp. J. Sci.* **80**: 367.

Type localities ♀, PHILIPPINE I.: Baguio, Luzon (*W. Schultze*). ♂, PHILIPPINE I.: Luzon, Baguio, Benguet, Irisan (*W. Schultze*).

A number of specimens collected at the Millawitiya Estate between 10.vii–19.xii.1956 and 26.ii.–8.v.1957 compare very well with the types from the Philippines. A single specimen originates from the Noragalla Estate (11.x.1956) another from the Galbode Estate (21.v.1956), and I have seen one specimen from Dikoya (3800–4200 feet (*George Lewis*)).

Cryphalus fuliginosus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15**: 319 (♀).

Type locality CEYLON: Bogawantalawa, 4900–5200 feet (*George Lewis*). Known from the type only.

Cryphalus mimicus Schedl

Schedl, 1942, *Tijdschr. Ent.* **85**: 17–18 (♀).

Type localities JAVA: 31.vii.1925 (288), Nr. 105a; Pasoeroean, xi.1932 (633b), Nr 347; Buitenzorg, 1919 (677), Nr 371; wie vor, 15.x.1923 (623d) Nr 105d; wie vor, 1919 (679), Nr 105e (all *Kalshoven*).

Four specimens from the Millawitiya Estate, collected on 20.vi and 11.ix. 1956, 26.ii and 8.v.1957, have been compared with the type, with which they correspond very closely.

Cryphalus palawanus Schedl

Schedl, 1942, *Kolon. forstl. Mitt.* **5**: 174 (♀).

Type locality PHILIPPINE I.: N. Palawan, Binaluan, November-December, 1913 (*Böttcher*).

This Philippine species was represented in Dr. Judenko's collection by a series of specimens from the Millawitiya Estate, taken between 2.v.1956 and 12.ix.1957.

Cryphalus scabricollis Eichhoff

Eichhoff, 1878, *Ratio, descriptio, emendatio eorum Tomicinorum* : 474, 491–2.

Type locality Patria : Hindostan Asiae.

Eichhoff's type originated from Birma, from where another specimen was reported by Eggers (Tennasserim, 1830 (*Dr. Helfer*)). I have also seen specimens from Malaya : Kedeh, 28.ix.1949 (*F. G. Browne*) and several from the old George Lewis collection from Ceylon : Bogawantalawa, 4900–5200 feet.

Cryphalus subcylindricus Schedl

Schedl, 1942, *Tijdschr. Ent.* **85** : 16–17 (♂ = ♀).

Type locality Java : Mount Gedé, viii.1923, 1500 m. (58), Nr 99 ; wie ver, 1400 m., Saninten Tjibodas, vi.1932, Schoorsboorder, Nr 364 (*Kalshoven*).

The original description of the male only is valid, being really the female, while the original female has been transferred to *Hypocryphalus mangiferae* Stebb. This synonymy is established elsewhere. The collector of the types must be corrected ; the Mount Gedé 1923 specimen was collected by Dr. L. G. E. Kalshoven, and that from Saninten Tjibodas, 1932, by H. R. A. Muller. From Ceylon there are two records, one from Dikoya, 3800–4200 feet (*George Lewis*) and the other from Dr. Judenko's collection, referring to specimens from the Millawitiya Estate (29.viii.1956 and 28.iv.1957).

Cryphalus substriatus Schedl

♀ Schedl, 1942, *Kolon. forst. Mitt.* **5** : 174.
♂ Schedl, 1953, *Ann. Mag. nat. Hist.* (12) **6** : 288–9.

Type locality ♀, Malaya : Selangor, Sg., Buloh For. Res., 11.x.1930, unter der Rinde von *Sloetia sideroxylon* (*F. G. Browne*).

♂, Malaya : Selangor, 20.iv.1950, *ex* bark of *Sloetia elongata* (*F. G. Browne*, Nr 5307) ; Kedah Jerai F. R., 28.ix.1949, *ex* bark of Lauraceae sp. (*F. G. Browne*, Nr. 4417). Langkawi Is., 19.x.1948 (*F. G. Browne*, Nr 4432).

A few specimens from the Millawitiya Estate, Ceylon, collected between 2.v.1956 and 12.iii.1957, agree quite well with the types from Malaya.

Cryphalus vestitus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 318–9.

Type locality Ceylon : Bogawantalawa, 4900–5200 feet (*George Lewis*). Known from the type only.

Cryphalus subvestitus sp. n.

Female.—Yellowish-brown, 1·9 mm. long, 2·1 times as long as wide. Easily recognised by the globose pronotum and sparse but very long pubescence of the elytra.

Front broadly convex, subopaque, very densely but minutely granulate-punctate, pubescence very short and inconspicuous.

Pronotum wider than long (22 : 19), globose, posterolateral angles of more than 90°, sides and apex conjointly rounded in somewhat more than a semicircular line, anterior margin with 6 small subequal asperities ; summit very high, shortly behind middle, anterior

area strongly convex, with relatively small and remotely placed asperities becoming more numerous around the summit, basal area minutely granulate-punctate ; pubescence two-fold, ground vestiture consisting of minute inclined scales, and among them long fine and erect hairs. Scutellum small, triangular.

Elytra as wide and 1·4 times as long as pronotum, sides parallel on basal half, apex very broadly rounded, declivity commencing distinctly behind middle, uniformly convex ; very densely covered with minute scales as on base of pronotum, the striae indicated by feebly impressed lines near base, strial punctures indistinct, interstices with uniseriate and sparsely placed long erect setae.

Types in Coll. Schedl.

Locality CEYLON : Millawitiya Estate, 24.iv, 2.v and 29.viii.1956, 26.ii.1957 (*E. Judenko*).

Hypocryphalus Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 8, 41.

Hypocryphalus mangiferae (Stebbing)

Stebbing, 1914, *Indian For. Ins.* : 542–3 (*Cryphalus*).

Hypothenemus sp. Stebbing, 1903, *Indian Mus. Notes* **6** : 68.
Hypocryphalus mangiferae Eggers, 1928, *Arch. Inst. biol. Def. Agric. anim. S. Paulo.* **1** : 85.

Type localities

H. mangiferae Stebb. : INDIA : Dehra Dun, U.P., 1902 (after Beeson, 1929).

H. mangiferae Egg. : BRAZIL : von C. Moreira an *Mangifera indica* gesammelt.

H. mangiferae undoubtedly came originally from the Indomalayan region, where it occurred on *Mangifera indica*. With its host plant it has been imported to many other tropical countries and has now been found in Brazil, Barbados, Central Africa, Madagascar, the Mangarewa Islands, the Sandwich Islands, Samoa and French Oceania. From Ceylon (without exact locality) it was first mentioned by C. F. C. Beeson (1940, *Occ. Pap. Bernice P. Bishop Mus.* **15** : 198). A few specimens were collected on the Millawitiya Estate and in the Denawake Group in 1956 during Dr. Judenko's experimental work.

Hypocryphalus cylindripennis sp. n.

Female.—Yellowish-brown, 1·5 mm. long, 2·4 times as long as wide. Obviously near *H.* (*Dacryphalus*) *cylindricus* Brown, but decidedly larger and differing in the type of pronotum.

Front broadly convex, subshining, minutely punctulate, finely punctured ; pubescence short and inconspicuous.

Pronotum as long as wide, posterolateral angles rectangular and only feebly rounded, sides parallel on basal two-fifths, broadly rounded at apex, apical margin with 6 rather remotely placed triangular asperities, the median ones only slightly larger than those on the sides ; summit moderately high, situated in the middle, anterior area obliquely convex, not very densely but regularly asperate, basal area long, very finely and very densely punctured ; pubescence very sparse, short and inconspicuous. Scutellum extremely small, knob-like.

Elytra only very feebly wider and 1·4 times as long as pronotum, sides subparallel on basal two-fifths, thence very feebly incurved, apex broadly rounded, declivity commencing

in the middle, evenly convex; entire elytra covered by very densely placed inclined minute scales (about a four-fold row in each interstice), the striae indicated by very fine hairless lines only, on the declivity each insterstice with a few additional erect setae.

Type in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, 21.vii.1956 (*E. Judenko*).

Hypocryphalus glabratus sp. n.

Female.—Piceous black, 1·0 mm. long, not quite twice as long as wide. A peculiar hairless (probably abraded) species, easily recognised by its shape and sculpture.

Front convex, subshining, very densely and finely granulate-punctate.

Pronotum distinctly wider than long (16 : 11), strongly globose, posterolateral angles rectangular and feebly rounded, sides subparallel on basal third, apex broadly convex, subapical constriction distinct, apical margin with 4 very closely placed asperities in the middle; summit rather high, situated in the middle, anterior area strongly convex, with numerous small asperities on a restricted space not extending to the sides, basal area densely granulate-punctate. Scutellum triangular, rather small.

Elytra as wide and 1·8 times as long as pronotum, cylindrical, with the sides parallel on basal two-fifths, apex broadly rounded, declivity commencing in the middle, evenly convex; entire elytra with a very faint fine punctation, but no striae or interstitial arrangement distinguishable; the pubescence largely abraded, but consists, as far as this can be ascertained, of minute inclined hairs.

Type in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, v.1957 (*E. Judenko*).

Stephanoderes Eichhoff

Eichhoff, 1871, *Berl. ent. Z.* **15** : 132.

Stephanoderes alter Eggers

Eggers, 1923, *Zool. Meded.* **7** : 219.

Type localities NEU GUINEA (Augustafluss), Ralum, Neu Pommern (Neu Britannien). PHILIPPINEN (Los Baños). BORNEO (Sarawak). Medan (*J. B. Corporaal*).

In the literature *S. alter* has also been mentioned from other islands of the Philippines, from various localities in Malaya, India, Java, Sumatra, Celebes, Indo China and from the Fiji Islands. The first reference to its occurrence in Ceylon is in C. F. C. Beeson (1941, *Forest Insects of India and the neighbouring countries*), where also are given a number of hostplants.

During Dr. Judenko's experiments this species was quite common on the Millawitiya Estate in 1956, rare on the Denawake Group and the Noragalla Estate.

Stephanoderes aulmanni Hagedorn

♂ Hagedorn, 1912, *Ent. Bl.* **8** : 41–42.
♀ Eggers, 1927, *Rev. Zool. afr.* **15** : 176.

Type localities ♂, DEUTSCH-OSTAFRIKA: Daressalam, in Kaffee.
♀, CONGO BELGE: Kasai, in " coton ", 1924 (*J. Ghesquière*).

S. aulmanni, a very distinct species, has so far been reported from Central Africa, where it extends only from Sierra Leone to the east coast of the continent.

From this region a good number of hostplants are known, among them various species of coffee and cacao.

On the Galbode Estate a single specimen was captured on 29.vi–30.vii.1956, showing that the distribution of this species extends to the east at least as far as Ceylon.

Stephanoderes hampei (Ferrari)

Ferrari, 1867, *Die forst-und baumzuchtschädlichen Borkenkäfer* : 11–13, 89. (*Cryphalus*).

Stephanoderes coffeae Hagedorn, 1910, *Ent. Bl.* **6** : 1–2.
Xyleborus coffeivorus van der Weele, 1910, *Bull. Dep. Agric. Ind. Néederl.* : 1–4.
Stephanoderes cooki Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 308.
Xyleborus coffeicola Campos Novaes, 1922, *Bol. agric. S. Paulo* **23** : 67–70.

The well known coffee berry borer was originally endemic to Central Africa but has now been imported to all coffee producing countries of the world, and is still one of the most injurious insect pests in coffee plantations. I am unable to check the first published record of its occurrence in Ceylon, as many of the government reports are not available here, but it must have been present for many years. Dr. Judenko's collection contained strikingly few specimens from the Millawitiya Estate (29.v and 6.x.1956), while the other coffee infesting species, *S. uniseriatus* Egg., was very common.

Stephanoderes uniseriatus Eggers

Eggers, 1924, *Ent. Bl.* **20** : 103 (♀).

Type locality CONGOSTAAT : Banana ; Luebo, 1921 (*J. Ghesquière*).

This Central African species, attacking coffee berries as well as seeds of many forest trees, was, apart from *Hypothenemus eruditus* Westw., the most common Cryphalinid in Dr. Judenko's collection. Every collection from Millawitiya, Hedgefield, Galbode and Noragalla Estates, as also those from the Denawake Group, contained at least a few specimens, probably because the seed of one of the shade trees was the preferred host.

Stephanoderes javanus Eggers

Eggers, 1908, *Ent. Bl.* **4** : 215 (♀).

Type locality hab. JAVA : insula asiatica, in fungis.

Since the original description was published this species has been reported from Bengal, Malaya, the Philippines, Formosa, Java and Borneo. As hosts C. F. C. Beeson mentions *Buchanania sessiliflora*, *Dipterocarpus zeylanicus*, *Dryobalanops aromatica*, *Dyera costulata*, *Mangifera indica*, *Sterculia macrophylla* and *Tamarindus indica*. The first record of its occurrence in Ceylon (without locality) also comes from the same author (1941). A fair number were collected on the Millawitiya Estate, single specimens on Hedgefield and Noragalla Estates.

Stephanoderes sundaensis Eggers

Eggers, 1924, *Treubia* **9** : 396 (♀).

Type localities SUMATRA: Haboko (*J. B. Corporaal*); JAVA: Idjen Plateau; BORNEO: Sarawak.

Four specimens of this species were taken on the Millawitiya Estate between 10.vi and 19.xi.1956.

Coccotrypes Eichhoff

Eichhoff, 1878, *Stettin. ent. Ztg.* **39**: 391.

Coccotrypes borassi Beeson

Beeson, 1939, *Indian. For. Rec.* (N.S.) **5** (3): 283–5, 301 (♀♂).

Type localities COORG: Bhagamandala, 3500 feet, Dec. 1938 to Feb. 1939, bred *ex* seeds of *Borassus flabellifer* (*C. F. C. Beeson*); same locality, *ex* fruits of *Vateria indica* (*Research Ranger*). CEYLON: Paradeniya, 1500 feet, 2.iv. 1914, *ex* seeds of *Caryota urens* (*A. Rutherford*).

The only other record is in Schedl, 1950, *Occ. Pap. Bishop Mus., Honolulu*, **20**: 39, reporting its occurrence in the FIJI ISLANDS: Viti Levu, Navai, 24.v, ex *Podocarpus* species, 24, 25.vi.1941 (*R. A. Lever*). Further specimens from *Caryota urens* were collected by H. Rutherford at Peradeniya in November 1914 (British Museum (Nat. Hist.)).

Coccotrypes carpophagus (Hornung)

♀ Hornung, 1842, *Stettin. ent. Ztg.* **3**: 116–7 (♀) (*Bostrichus*).
♂ Eggers, 1920, *Ent. Bl.* **16**: 33 (*Coccotrypes nanus*).

Coccotrypes integer Eichhoff, 1878, *Stettin. ent. Ztg.* **39**: 391 (♀).
Coccotrypes pygmaeus Eichhoff, 1878, *Ibid.* **39**: 391 (♀).
Coccotrypes rolliniae Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99**: 46–47 (♀).
Coccotrypes anonae Hopkins, 1915, *Ibid.* **99**: 46–47 (♀).
Coccotrypes nanus Eggers, 1920, *Ent. Bl.* **16**: 33 (♀).
Coccotrypes brevis Eggers, *in litt.*

Type localities

C. carpophagus ♀, OSTINDIEN: in Früchten von Betelnüssen, *Areca catechu*. ♂, KAMERUN.

C. integer SIAM.

C. pygmaeus MADAGASCAR.

C. rolliniae BRAZIL: Para, in seeds of *Rollinia octopetala* (*C. F. Baker*).

C. anonae CUBA: 1911, in *Anona squamosa*.

C. nanus KAMERUN.

C. brevis BRASILIEN (*Schreiner*).

It is difficult to say where *C. carpophagus* originally came from as, like many other seed beetles, it may have been distributed by human agency in early times.

At present it can be found throughout the tropical and subtropical regions of the world, attacking a great number of seed and fruits of forest trees, especially the various palms. From Ceylon it has been reported once by W. F. H. Blandford (1898, *Trans. ent. Soc. Lond.* **1898**: 424) attacking ebony seeds (*Diospyros ebenum*).

Coccotrypes ceylonicus Schedl

Schedl, 1949, *Tijdschr. Ent.* **91** (1948) : 119–20 (♀).

Type locality Ceylon.
No other record.

Coccotrypes dactyliperda (Fabricius)

♀ Fabricius, 1801, *Systema Eleutheratorum* **2** : 387 (*Bostrichus*).
♂ Eichhoff, 1866, *Berl. Ent. Z.* **10** : 277–8.

Bostrichus palmicola Hornung, 1842, *Stettin. ent. Ztg.* **3** : 115–6.
Bostrichus laboulbeni Decaux, 1890, *Etude Ins. Expos. Univ. Paris.*
Coccotrypes dactyliperda a. *obscurus* Rey, 1892, *Échange* **8** (86) : 30.
Coccotrypes eggersi Hagedorn, 1904, *Allg. Z. Ent.* **9** : 448–9 (♂♀).
Coccotrypes moreirai Eggers, 1928, *Arch. Inst. biol. Def. agric. anim. S. Paulo* **1** : 86 (♀).
Coccotrypes tanganus Eggers, 1935, *Rev. Zool. Bot. afr.* **27** : 307 (♀) ; Schedl, 1937, *Arb. morph. taxon. Ent.* **4** : 67 (♂).

Type localities

C. dactyliperda Europa : importiert in " *Dactylorum nucleis* ".

C. laboulbenei uncertain.

C. palmicola Importiert nach Deutschland in Früchten von Betelnüssen *Areca catechu* aus Ostindien.

C. eggersi, Nach Hamburg importiert in Steinnüssen, *Phytelephas macrocarpa* Ruiz et Pav. aus Ekuador.

C. moreitai, Brasil : Gauxupê (Minas Geraes).

C. tanganus ♀, Ostafrika : Tanga, 1918 (*W. A. Lamborn*). Uganda : Kampala, 1932 (*T. W. Chorley*). Panama-Canalzone (aus *Chamaedorea*-Samen) 1930. ♂ Nach Deutschland importiert in Steinnubknöpfen aus Alexandria, Aegypten (*A. Herfs*).

C. dactyliperda is at present distributed from the eastern parts of Africa into the Indomalayan region and Central and South America, and is the most common species of the genus, attacking a great number of seeds and fruits. Of its occurrence in Ceylon there is only a single record (without exact locality) by C. F. C. Beeson (1939, *Indian For. Rec.* (N.S.) **5** (3) : 301). Dr. Judenko's collection also did not include this species.

Coccotrypes theae Eggers

Eggers, 1929, *Ent. Nachr Bl.* **3** : 112 (♀).

Type locality Ceylon : Peradeniya, *ex* tea seed (*Camellia theifera*) (*F. C. Nutson*).

C. theae was one of the commonest species captured during Dr. Judenko's work throughout the years 1956 and 1957 and came from the Millawitiya Estate as well as from the Denawake Group and the Noragalla Estate. Unfortunately nothing is known about the hosts or general biology of this species.

Probably the *Coccotrypes sp.* mentioned by E. E. Green (1922, *Trop. Agriculture, Trin.* **38** : 39) belongs to this species. The note by Green " in dead and diseased branches of *Albizzia moluccana*, and in dead leaf stalks of *Hevea* " certainly does not mean that they have bred there. In such circumstances

infesting beetles have hidden under the bark when there were no seeds to attack, usually during the dry season.

Poecilips Schaufuss

Schaufuss, 1897, *Berl. Ent. Z.* **42** : 110.

Thamnurgides Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 9, 45.
Spermatoplex Hopkins, 1915, *Ibid.* **99** : 48.
Dendrurgus Eggers, 1923, *Zool. Meded.* **7** : 129, 130, 144.

Poecilips brevior Eggers

Eggers, 1927, *Philipp. J. Sci.* **33** : 84 (♀).

Type localities PHILIPPINEN : Luzon, Provinz Mountain, Balbalan (*Böttcher*) ; SUMATRA.

Further specimens of this species have been reported by Schedl (1942, *Tijdschr. Ent.* **85** : 4) under the name *Poecilips montanus* Egg. *in litt.* During Dr. Judenko's work a single specimen was captured on the Millawitiya Estate on 8.v.1957.

Poecilips cardamomi (Schaufuss)

Schaufuss, 1905, *Insektenbörse* **1905** : 8 (♀) (*Coccotrypes*).

Type locality, CEYLON (de Warendorf) *ex* fructibus *Elettariae maioribus*.

P. cardamomi has also been reported from INDIA (Coorg and Madras) and SUMATRA, and it has been found in ITALY in fruits of *Cardamom* originating from the Indomalayan region. In the literature the following hosts have been mentioned : *Canarium strictum*, *Cullenia excelsa*, *Elaeocarpus tuberculatus*, *Ellataria major*, *Eugenia jambolana*, *Hardwickia pinnata* and *Vateria indica*, (fruits and seeds in all cases).

Poecilips cinnamomi (Eggers)

Eggers, 1936, *Ann. Mag. nat. Hist.* (10) **18** : 630 (♀) (*Thamnurgides*).

Type locality CEYLON : Peradeniya, 7.vii.1931 (*J. C. Huston*) (" Boring seeds of *Cinnamomum zeylanicum* ").

Other reports of this species are based on material originating from INDIA (Bombay and Coorg), MALAYA (Selangor Sg., Buloh F. R.) and JAVA (W. Preanger, ix.1931 (*L. G. E. Kalshoven*)). Additional hosts have been seeds of *Machilus macrantha*, *Myristica cinnamomea* and *Artocarpus sp.*

The only specimen from Ceylon was collected on the Denawake Group, 28.vi–26.vii.1956.

Poecilips indicus (Eggers)

Eggers, 1936, *Ann. Mag. nat. Hist.* (10) **18** : 631 (♀) (*Thamnurgides*).

Type localities BRIT. INDIEN, Mysore State : Sakalaspur, 25.viii.1930, an *Terminalia belerica* ; Coorg, Sept. 1930, an *Liberia* coffee ; Oct. 1930, on *Arabica* coffee ; Sakalaspur, 23.xi.1930, in dry " Thary " seeds, in dry " Shiduvala " seeds ; from *Artocarpus lakucha* ; from *Eugenia jambolana*

fruits. Balehonnur farm, from a kind of " hara " nut. Somsey Estate, from *Liberia* coffee berries.

To this list C. F. C. Beeson, (1939, *Indian For. Rec.* (N.S.) **5** (3) : 304) added quite a number of new localities in India and a good number of hostplants, and the present author reported the same species from Malaya ex *Shorea leprosula*. In the tea plantation where Dr. Judenko carried out his *fornicatus* experiments *P. indicus* was frequently found in the Millawitiya Estate throughout the year 1956, once on the Galbode Estate (8–29.vi.1956), and once on the Hedgefield Estate (11.xii.1956).

Poecilips longior Eggers

Eggers, 1927, *Philipp. J. Sci.* **33** : 83.

Type locality PHILIPPINEN : Luzon, Provinz Mountain, Balbalan (*Böttcher*).

This species has also been reported from JAVA and MALAYA, attacking *Artocarpus* sp. in Kelantan. During Dr. Judenko's experiments *P. longior* was quite common on the Millawitiya Estate throughout 1956 and one specimen was found on the Hedgefield Estate between 25.vi and 23.vii.1956.

Poecilips rhizophorae (Hopkins)

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 48 (*Spermatoplex*).

Dendrurgus rhizophorae Eggers, 1923, *Zool. Meded.* **7** : 49.

Type localities

P. (*Spermatoplex*) *rhizophorae*, FLORIDA : Miami, 1910, in *Rhizophora mangle*.
D. rhizophorae, INSEL SALEYER und MOEARA ANTJOL (*Jacobson*).

This mangrove infesting species has also been found in SUMATRA and MALAYA, and one single specimen was taken on the Millawitiya Estate on 29.i.1957.

Poecilips myristicae (Roepke)

Roepke, 1919, *Treubia* **1** : 23–29 (*Thamnurgides*).

Dendrurgus sundaensis Eggers, 1923, *Zool. Meded.* **7** : 145.

Type localities
P. (*Thamnurgides*) *myristicae*, JAVA : Gamber, Salatiga.
D. sundaensis OST-SUMATRA, Tambang, Salida.

P. myristicae seems to be widely distributed in the Indomalayan region and has so far been reported from Ceylon, India, Penang, Sumatra, Java and Samoa. The author has also seen specimens from the Philippines and New Guinea.

The specimens on which the original description was based were reared from fruits of *Myristica fragrans*, the well known nutmeg-tree, and Dr. Kalshoven recorded it to attack Javanese species of *Myristica* and *Quercus* generally.

P. myristicae was one of the commonest species in all the collections made by Dr. Judenko in experiment no. 23 on the Millawitiya Estate, producing 995 specimens between 3rd May, 1956 and 8th May, 1957. Apparently this species is dependent on the seeds of the shade trees planted between the tea

bushes, such as *Albizzia moluccana* Miq., *Grevillea robusta* A. Cunn. or *Gliricida maculata* H. B. K.

The flight period, based on Dr. Judenko's air migration experiment No. 23, seems to be closely related to the seasonal rainfall, showing a large and high optimum during the late summer monsoon and a smaller peak during the spring monsoon between the end of January and the beginning of March. These two peaks obviously do not represent the flight of two different generations—the life cycle of *P. gedeanus* Egg., a closely allied species, takes about three weeks in Malaya—but rather indicate the periods within which seeds are available.

The number of specimens caught was greatest in the lowest of the four sections of the trap, that is immediately above the ground, decreasing very rapidly towards higher levels.

In general *P. myristicae* was very abundant at the low elevation (Millawitiya Estate), much less so on the Denawake Group with an elevation from 400 to 1200 feet, and nearly absent on the Hedgefield Estate above 1500 feet.

Poecilips rugicollis (Eggers)

Eggers, 1925, *Sborn. ent. Odd. Nar. Mus. Praze* **3** : 153, 157 (*Thamnurgides*).

Type locality Birma : Tenasserim, 1830 (*Dr. Helfer*).

P. rugicollis has also been reported from Malaya and a good series has been seen from Fukien in China. Dr. Judenko's collection contained two specimens from the Millawitiya Estate (6.x and 19.xii.1956). No host plants are known.

Poecilips salakensis Schedl

Schedl, 1939, *Tijdschr. Ent.* **82** : 38–39.

Type locality Java : Mount Salak, 21.xii.1935, ex *Agathis* killed by *Corticium* (*L. G. E. Kalshoven*).

P. salakensis was somewhat more common than *P. longior* and has been taken on the Millawitiya and Noragalla Estates and in the Denawake Group in 1956. Other records do not exist.

Poecilips variabilis (Beeson)

Beeson, 1939, *Indian For. Rec.* (n.s.) **5** (3) : 286–7, 306 (*Thamnurgides*).

Type localities India : Coorg. Bhagamandala, Karike, 3,500 feet, October, 1938–February, 1939, bred *ex* fruits of *Vateria indica* (*Research Ranger*); also *ex* fruits of *Ficus glomerata*. Madras : Wynaad Division, Chandanathode, Dec., 1938, *ex* fruits of *Cullenia excelsa* (*C. F. C. Beeson*) ; Nilgeri Hills, 4,000 feet, Aug. 1908 (*H. L. Andrewes*). Burma : North Toungoo Division, Myhola Reserve, 17.x.1937, *ex* dead *Tectona grandis* (*P. F. Garthwaite*). Ceylon : Murambekanda, Ratnapura, 500 feet, 31.xii.1934, *ex* fruits of *Dillenia retusa* (*Gauri Dutt*, S. E. No. 2246) ; Peradeniya, 11.x.1914 (*Rutherford*). Java : Buitenzorg, Jan.–June, 1924, d 29a, Sc. 81, Sc. 96 bcd ; 11.i.1926, No. 4, Sc. 96 (*L. G. E. Kalshoven*).

Specimens collected by A. Rutherford at Paradeniya on 11.x.1911, were taken " ex living branches of *Acacia pennata*" (British Museum (Nat. Hist.)).

A good number of specimens have been found in various localities in Malaya,

and on the Millawitiya Estate in Ceylon it was one of the more common Scolytids throughout 1956.

In the collection of the late Forstrat Eggers, the well known specialist on Scolytidae, there were also some specimens, marked as types, of *Poecilips subnitidus* Egg. *in litt.* from JAVA: G. Slamet, 10.iv and 19.vii.1930 (*F. C. Drescher*), which belong to *P. variabilis*. Additional hosts, although without exact localities, are given in Beeson, 1941, *Forest Insects of India and the neighbouring countries*.

Dryocoetes Eichhoff

Eichhoff, 1864, *Berl. ent. Z.* **8** : 38.

Dryocoetes coffeae Eggers

Eggers, 1923, *Zool. Meded.* **7** : 161.

Type locality JAVA: aus *Coffea hybrida*.

Since the publication of the original description *D. coffeae* has been reported once again from Java from coffee, from Bengal, ex *Albizzia procera*, and from Malaya ex *Swietenia macrophylla*. From Ceylon I have seen specimens from Paradeniya, 22.iv.1914, ex *Coffea robusta* (*A. Rutherford*), formerly designated *Xyleborus* sp. n. by W. Sampson.

Dryocoetes flavicornis Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 320.

Type locality CEYLON: Bogawantalawa, 4900–5200 feet (*G. Lewis*). No other record.

Dryocoetes taprobanus Blandford

Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 203.

Type locality CEYLON: (Thwaites: in Mus. Oxon.). No other record.

Arixyleborus Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 10, 59.

Xyleboricus Eggers, 1923, *Zool. Meded.* **7** : 212.

Arixyleborus granulifer (Eggers)

Eggers, 1923, *Zool. Meded.* **7** : 206 (*Xyleborus*).

Type localities Sinabang auf Simalur, einer Nebeninsel SUMATRAS; Sammler Edw. Jacobson. Auch von Sumatra und Mentawei.

In the meantime *A. granulifer* has been reported from Malaya, ex *Kompassia excelsa* and *Shorea leprosula*. In Ceylon it was captured several times on the Millawitiya Estate in 1956 and 1957.

Arixyleborus malayensis (Schedl)

♂ Schedl, 1954, *Philipp. J. Sci.* **83** : 144, 150–1 (*Xyleboricus*).
♀ Schedl, K. E. (*In press.*)

Type locality ♂, JAVA: Batoerraden, G. Slamet, 10.iv.1930, *ex* pohon karet pertjy (*F. C. Drescher*). ♀, same locality, 17 and 19.vii.1930.

This species has been reported from Malaya and, under the name of *Xyleboricus marginatus* Egg. (*in litt.*), from various hosts in Java. In the collection from the Millawitiya Estate, the Denawake Group and the Noragally Estate it was as common in 1956 as some species of *Xyleborus*.

Arixyleborus mediosectus (Eggers)

Eggers, 1923, *Zool. Meded.* **7**: 215 (♀) (*Xyleboricus*).

Type locality Sinabang auf der Insel Simalur (südlich SUMATRA) (*Jacobson*).

A small number of specimens of this species were collected on the Millawitiya Estate between 24.iv.1956 and 6.iv.1957. No other records.

Arixyleborus rugosipes Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99**: 59 (♀).

Webbia medius Eggers, 1927, *Philipp. J. Sci.* **33**: 104.
Webbia camphorae Eggers, 1936, *Ann. Mag. nat. Hist.* (10) **18**: 634.

Type localities

A. rugosipes, PHILIPPINE ISLANDS: Pagbilao, in *Dipterocarpus grandiflorus*, 7.viii.1903 (*J. L. Webb*).

W. medius, PHILIPPINEN: Mindanao, Provinz Lanao, Kolambugan. Minodro: Subaan. NEGROS: Provinz Occidental Negros, Fabrica. 1 Stück auch von Süd Sumatra.

W. camphorae, JOHORE: Kluang, 12.vii.1932, " in Camphor wood ".

Other specimens reported originate from Malaya ex *Shorea acuminata*, *Shorea sp.*, *Diospyros* sp., *Shorea parvifolia* and *Cinnamomum camphora*. On the Millawitiya Estate two specimens were collected (10–16.vii and 29.viii–11.ix.1956) and one in the Denawake Group (16.ii–23.ii.1956).

Arixyleborus scabripennis (Blandford)

♀ Blandford, 1896, *Trans. ent. Soc. Lond.* **1896**: 216–7 (*Xyleborus*).
♂ Schedl, 1950, *Tijdschr. Ent.* **83**: 44, 48, 77 (*Xyleborus*).

Type localities

♀ BORNEO: Sarawak (*Wallace*); SUMATRA: from tobacco (*Grouvelle*).
♂ JAVA: Batoerraden, G. Slamet, 6.ii und 6.iv.1930 (*F. C. Drescher*).

Additional localities for this species have been reported from Java, Malaya and Sarawak. F. G. Browne (1955, *Sarawak Mus. J.* **6**: 350, 351) included " Ceylon " in the distribution but without further details.

Webbia Hopkins

Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99**: 222–3, 226.

Webbia ceylonae sp. n.

Female.—Head and pronotum dark reddish-brown, elytra pale yellowish, declivity fusco-ferrugineus, 2·7 mm. long, 3·2 times as long as wide. Of the same general shape as *W. platypoides* Egg., but the elytral declivity with a single conical process on each elytron.

Front shining, broadly convex, minutely punctulate, finely punctured, pubescence nearly obsolete.

Pronotum longer than wide (32 : 25), cylindrical, posterolateral angles closely attached to elytra, rectangular and not visibly rounded, sides parallel on basal three-fourths, anterolateral angles rather distinct, shortly rounded, apex transverse in the middle; summit far beyond the middle, anterior area short, finely and densely asperate, the asperities somewhat coarser towards the anterolateral angles, the long basal area subshining, with a very fine, partly indistinct puncturation; some squamose hairs between pronotum and elytra. Scutellum indistinct.

Elytra as wide and nearly 1·5 times as long as pronotum, shape and sculpture as in *W. platypoides*; declivity oblique above, perpendicular below the processes, apical margin acuminate at the suture; dorsal and lateral margin of the oblique section with a short triangular tooth on each of first 4 interstices, at the sides some more but still smaller tubercles; apical processes inserted just below upper half of declivity, each very large, cylindrical at base, conical at apex, which is directed upwards at an angle of 45° to the longitudinal axis of the beetle; lateral margin of oblique section ending on each side in a triangular short process.

Types in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, 8.iv.1957 (*E. Judenko*).

Xyleborus Eichhoff

Eichhoff, 1864, *Berl. ent. Z.* **8** : 37.

Xyleborus asperatus Blandford

♀, Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **17** : 321.
♂, Eggers, 1936, *Tijdschr. Ent.* **79** : 88 (*Xyleborus nepotulomorphus*).

Xyleborus nepotulus Eggers, 1923, *Zool. Meded.* **7** : 179 (♀).
Xyleborus nepotulomorphus Eggers, 1936, *Tijdschr. Ent.* **79** : 88 (♀).

Type localities

X. asperatus CEYLON: Dikoya, Hadley Tea Estate, 3800–4200 feet (*G. Lewis*) (♀).

X. nepotulus Brastagi an der Ostküste Sumatra's, 1300 m. hoch (*J. B. Corporaal*) (♀).

X. nepotulomorphus JAVA: G. Slamet (*F. C. Drescher*) (♂♀).

The original *X. asperatus* was reported only from Ceylon, suggesting that it is endemic to this island. In view of the new synonyms its distribution extends to Java, where it infests "pohon pari" and "karet pertja" (? *Palaquium* sp.) and Malaya (*ex Artocarpus* sp.).

E. E. Green reported *X. asperatus* from dead branches of *Albizzia sp.* in Ceylon (1912, *Trop. Agriculture, Trin.* **37** : 38), W. Sampson (1911, *Ann. Mag. nat. Hist.* **8** : 383) from the Botanical Garden ex *Albizzia moluccana* Miq. and *Hevea brasiliensis*, C. F. C. Beeson (1930, *Indian For. Rec.* **14** (10) : 215, 227, 265) from Dikoya, Kurunegalla, 500 feet, Peradeniya, 1500 feet, Balangoda.

3000 feet, and Uva Banderawela, 4000 feet, infesting *Acacia decurrens* and *Albizzia moluccana* Miq.

Dr. Judenko's collection contained specimens from the Millawitiya Estate (20.iii–20.vii.1956), and the Noragalla Estate (12.xi–12.xii.1956).

Xyleborus arquatus Sampson

Sampson, 1912, *Ann. Mag. nat. Hist.* (8) **10** : 246 (♀).

Type locality CEYLON : (*E. E. Green*).

Green reported this species as a troublesome pest on camphor-trees, where it has been found in living and dead branches. Later, E. R. Speyer (1923, *Bull. ent. Res.* **14** : 17–18) gave another record from Ceylon, stating that it had been found in Hewaheta, 3000 feet, and Peradeniya, 1500 feet, in *Cinnamomum camphora*. In the same paper Speyer gives some details of breeding habits of this species. No specimens were found in Dr. Judenko's collection.

Xyleborus rudis Eggers

Eggers, 1930, *Indian For. Rec.* **14** (9) : 16 (♀).

Type locality MADRAS : Nilambur, ex *Artocarpus integrifolia* (*S. N. Chatterjee*).

From Ceylon this species has been reported (without exact locality) by C. F. C. Beeson (1941, *Forest Insects of India and the neighbouring countries*), but the host plant quoted suggests a confusion with the types from Madras. The only other record is by Schedl (1936, *J.F.M.S. Mus.* **18** : 20) of its occurrence in Malaya on *Shorea leprosula*.

Xyleborus pseudocitri sp. n.

Female.—Piceous black when mature, 2·1 mm. long, 2·3 times as long as wide. Allied to *X. citri* Beeson, but smaller, stouter, the elytra very finely lineate-punctate and the declivital tubercles larger.

Front moderately convex, subshining, minutely punctulate, rather coarsely and densely punctured, with slight indication of a longitudinal carina above ; pubescence short and inconspicuous except for the usual fringe along anterior margin.

Pronotum as long as wide, posterolateral angles rounded, sides subparallel, slightly arcuate on somewhat more than basal half, anterior margin broadly rounded, anterolateral angles feebly developed ; summit in the middle, moderately high, anterior area densely covered with medium sized asperities, which continue but become much finer on basal area ; pubescence very fine and erect. Scutellum very small, triangular and shining.

Elytra but feebly wider (27 : 26) and 1·4 times as long as pronotum, sides subparallel on basal half, thence feebly narrowed, apex rather abruptly incurved and very broadly rounded, declivity commencing in the middle, at first more feebly, thence abruptly convex ; disc very finely lineate punctate, the interstices wide and each with a row of more remotely placed punctures of the same size as those of the primary rows, the interstitial punctures giving rise to very fine but long and erect hairs ; declivity very strongly impressed along suture, the lateral portions thus appearing elevated, second interstice armed with 4 tubercles, the median 2 rather large, first and fourth much smaller, a few small granules also present on third and fourth interstices, punctuation much smaller than in *X. citri* Beeson and apical margin less marked.

Types in Coll. Schedl.

Locality CEYLON : Sabargamuva, Millawitiya Estate, 5.vii–1.viii, 29.viii–11.ix.1956 (*E. Judenko*).

Xyleborus morigerus Blandford

Blandford, 1894, *Insect Life* **6** : 264–5 (♀♂).

Xyleborus coffeae Wurth, 1908, *Cultuurgides X, Tweede Gedeelte* : 63–78 (♀♂).

Type localities

X. morigerus Hab. incert : in caulibus orchidum *ex* Nova Guinea invectarum habitans.

X. coffeae Java : exact locality not cited. After L. G. E. Kalshoven : Central Java, Banaran Estate, near Salitaga, 1907.

The original habitat of *X. morigerus* is not absolutely clear but may have been between New Guinea and the Indomalayan archipelago. The present distribution apparently covers the entire Indomalayan region, extending to the East to Samoa and the Fiji Islands. A detailed account and a summary of its biology is published elsewhere. The species attacks a great number of host plants, among them tea, coffee, *Hevea brasiliensis*, *Lonicera caprifolium*, *Tephrosia vogelii*, *Persea gratissima* and *Dendrobium* sp. in Ceylon. It was reported by Rutherford in 1914 from tea in Wattegama, from coffee in Pelmadulla, and other specimens taken by Rutherford originate from Paradeniya, (20.vii.1914, British Museum (Nat. Hist.)). Dr. Judenko's collection contained two specimens from the Millawitiya Estate (19.xi.1956).

Xyleborus morstatti Hagedorn

Hagedorn, 1912, *Ent. Bl.* **8** : 37–40 (♀♂).

Type locality Deutsch-Ostafrika : Amani, in *Coffea bukowensis*.

X. morstatti was originally endemic to central Africa but, finding suitable breeding conditions in coffee, it has been imported to many of the coffee growing countries, *e.g.* India, Malaya, Indo-China, Borneo, Java, Sumatra, Celebes and the Fiji Islands.

From Ceylon it has been reported once by Speyer in 1925. The present collection contains specimens from the Millawitiya Estate (14.iii–11.iv.1956), the Denawake Group (8.ii–16.ii and 24.viii–20.ix.1956), and the Noragalla Estate (11.x–12.xii.1956).

A detailed account of the distribution, biology and control of *X. morstatti* will be published elsewhere.

Xyleborus mesuae Eggers

Eggers, 1930, *Indian For. Rec.* **14** (9) : 6 (♀).

Type localities Bengal : Kalimpong, 1910, an *Mesua ferrea* ; United Provinces : (Siwaliks, Phandowala, salbark, 1911).

According to Beeson (1930) the record for the Siwaliks (Phandowala *ex* salbark) is probably an error in labelling ; obviously the insect referred to is the *Xyleborus* sp. mentioned by E. P. Stebbing in 1914 (*Indian Forest Insects :* 588).

In Dr. Judenko's collection there were specimens from the Millawitiya Estate (27.vi–3.vii, 10–16.vii, 11–24.ix.1956 and 11.ii–13.iii.1957), the Galbode Estate (21.v–29.vi, 30.vii–24.ix.1956) and from the Noragalla Estate (12.xi–12.xii.1956).

Xyleborus semiopacus Eichhoff

♀ Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 60, 334–5, 478, 503. Deposition of types not given.
♂ Browne, 1948, *Ann. Mag. nat. Hist.* (12) **1** : 907 (*Xyleborus declivigranulatus* Schedl) Type in the British Museum (Nat. Hist.).

Xyleborus semigranosus Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 211–2 (♀).
Dryocoetes sp. Stebbing, 1907, *Indian For. Bull.* **11** : 38.
Dryocoetes bengalensis Stebbing, 1908, *For. Mem.* (Zool.) **1** (I) : 12.
Xyleborus mascarenus Hagedorn, 1908, *Dtsch. ent. Z.* **1908** : 379 (♀).
Xyleborus bengalensis Stebbing, 1914, *Indian Forest Insects* : 590 (♀).
Xyleborus okouméensis Schedl, 1935, *Stylops* **4** : 271–2 (♀).
Xyleborus declivigranulatus Schedl, 1936, *J.F.M.S. Mus.* **18** : 30 (♀).
" Types in the Commonwealth Institute of Entomology (British Museum) and in my (Schedl) Collection."
Xyleborus okouméensis Schedl, 1950, *Rev. Zool. Bot. afr.* **43** : 209 (♂).

Type localities

X. semiopacus Nipon insula Japonica (Hagi, Hiller).

X. semigranosus SUMATRA : from tobacco (*Grouvelle*).

D. bengalensis (*Dryocoetes* sp., *Xyleborus bengalensis*) BENGAL.

X. mascarenus DEUTSCH-OSTAFRICA : Bomole et Amani (*Dr. Eichelbaum*) ; MAURITIUS : (*H. E. Andrewes*).

X. okouméensis, HESSEM-NASSAU : Carlshafen, *ex* imported Okume logs (*B. Folwaczny*).

X. declivigranulatus ♀ MALAY PENINSULA : Selangor, Kepong, ex *Dipterocaprus baudii*, 16.v.1933 (*A. B. Walton*) ; Bukit Chelaka Forest Reserve, 1.xi.1929 (*M. L. Webber*) ; Bukit Lagong Forest Reserve, 9.vi.1934, in wood of felled *Sandoricum* sp. (*F. G. Browne*).

♂, Malaya : Kelantan, Pulai, Chondong, 11.i.1947 (*F. G. Browne*).

The geographical distribution of *X. semiopacus* covers a very large area, extending from the tropical parts of Africa, Madagascar, Mauritius, Ceylon (1000–4000 feet) and the entire Indomalayan region to the subtropical parts of China (Fukien, Hong-Kong) and the warm temperate zone of Japan (Honshû, Kiushu). It also seems to be endemic in New Guinea, although its occurrence in Samoa might have been caused by human agency.

From Ceylon it was reported for the first time by Blandford (1898, *Trans. ent. Soc. Lond.* **1898** : 424) attacking *Theobroma cacao*. The second record for this country is that of E. E. Green (1912, *Trop. Agriculture, Trin.* **38** : 38) recording its attack on *Eucalyptus*, *Hevea*, *Grevillea* and dead and apparently healthy branches of tea. Speyer (1923, *Bull. ent. Res.* **14** : 18) added to this list *Cedrela toona*, *Grevillea robusta*, *Hevea brasiliensis* and diseased sugar cane (*Saccharum officinarum*). The large number of hosts outside Ceylon, and details of distribution in other countries, will be published in another paper.

During the experiments of Dr. Judenko, *X. semiopacus* was found in the Millawitiya Estate on 16–22.v and 16–24.vii.1956 and in the Noragalla Estate from 11.x–12.xii.1956.

Xyleborus discolor Blandford

♀ Blandford, 1898, *Trans. ent. Soc. Lond.* **1898** : 429.
♂ Eggers, 1939, *Arb. morph. taxon. Ent.* **6** : 119 (*Xyleborus posticestriatus*).

Xyleborus posticestriatus Eggers, 1939, *loc. cit.* ♀.
Xyleborus posticestriatus Egg., Schedl, 1950, *Tijdschr. Ent.* **93** : 63–64, ♂.

Type localities

X. discolor Ceylon : (*E. E. Green*).
X. posticestriatus ♀♂ Formosa : Taihoku, 1934, 1936 (*M. Chûjô*).
X. posticestriatus ♂ Schedl Z. Sumatra : 1926 (*L. G. E. Kalshoven*).

In sculpture and general appearance the females of *X. discolor* and *X. posticestriatus* are exactly alike and the same applies to the average size. Therefore *X. posticestriatus* Egg. must be withdrawn in favour of the much older *Xyleborus discolor* Blandf.

Both species vary to a large extent in size. In the very long series in Dr. Judenko's collection the smallest female measures 1·5 mm. in length, the largest 2·0 mm. This extraordinary variation has also been found previously in specimens from Java and many intermediate measurements are found in both series.

X. discolor is evidently endemic to the Indomalayan region and has been reported so far from Ceylon, Madras, United Provinces of India, Assam, Burma, Sumatra, Java and Formosa. In Ceylon it was found by E. E. Green (1912, *Trop. Agriculture, Trin.* **38** : 39) in dead branches of *Albizzia moluccana*, Miq. and in dead leaf stalks and stems of young *Hevea*. E. R. Speyer (1923, *Bull. ent. Res.* **14** : 21) reported *X. discolor* from Ceylon at altitudes from 1000 to 4000 feet, living in *Albizzia molucanna*, *Coffea* sp., *Cinnamomum camphorae*, *Theobroma cacao*, *Grevillia robusta* (silky oak) and *Lonicera caprifolia* (honeysuckle). In the British Museum there are also some specimens collected by A. Rutherford at Peradeniya (July, 1914) on *Tecoma* stems. C. F. C. Beeson reported a good number of host plants from India ; L. G. E. Kalshoven recorded others from Java.

The doubtful record of *X. amputatus* Blandf., a Japanese species, given by Speyer in 1923 might probably apply to *X. discolor*.

During Dr. Judenko's experiments *X. discolor* was taken in good numbers in the Millawitiya Estate throughout 1956 and 1957, more rarely on the Hedgefield Estate (28.v.–25.vi.1956) and once in the Denawake Group (8–23.ii.1956).

Xyleborus nudipennis Schedl

Schedl, 1950, *Tijdschr. Ent.* **93** : 63 (♀).

Type locality Java : Buitenzorg, 250 m., 1924 (*L. G. E. Kalshoven*).

A single specimen was collected by Dr. Judenko in the Millawitiya Estate on 27.x.1956 ; this is the second record for this species.

Xyleborus xanthopus Eichhoff

♀ Eichhoff, 1868, *Berl. ent. Z.* **12** : 151.
♂ Eggers, 1920, *Ent. Bl.* **16** : 116, 124, 174.

Bostrichus xanthopus Dejean *in litt.*, 1837, *Cat. Coleopt.* Ed. **3** : 382 (♀).
Xyleborus fraternus Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 212–3 (♀).
Xyleborus kiruensis Eggers, ♀, 1935, *Rev. Zool. Bot. afr.* **27** : 309. ♂ Schedl, 1952, *Bull. Inst. Roy. Sci. nat. Belg.* **28** : 3, 11.
Xyleborus siginis Hagedorn, *in litt.*

Type localities

X. xanthopus (*Bostrichus xanthopus* Dejean *in litt.*).
♀ Südafrika : Cap (Drege).
♂ Ostafrika (Voesseler).
X. fraternus ♀ Ceylon.
X. kivuensis ♀ Congo Belge : Kivu, Mulungu, 1933 (*L. van Roechoudt*).
♂, Congo Belge : Kivu, Mulungu, 1942 (*P. C. Lefèvre*).

X. xanthopus is one of the most common and widely distributed ambrosia beetles in Africa and Madagascar. In the East it has been known from Ceylon and Java under the synonymous name of *X. fraternus* Blandf. In Africa it has been found on a very large number of hostplants of different families and the same may apply when more is known of this species in the Indomalayan region.

From Ceylon there are records of the type and of some specimens collected by G. Lewis in the British Museum (Nat. Hist.).

Xyleborus fornicatus Eichhoff

♀ Eichhoff, 1868, *Berl. ent. Z.* **12** : 151.
♂ Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 213.

Xyleborus ignobilis Perkins, 1900, *Fauna Hawaiiensis* **2** : 180 (♀).
Xyleborus fornicatior Eggers, 1923, *Zool. Meded.* **7** : 184 (♀).

Type localities

X. fornicatus ♀♂, Ceylon.
X. ignobilis Hawaii : two on the windward, and one on the leeward side of the island (2000 feet).
X. fornicatior Ceylon : Peradeniya ; Neu Guinea : Ighibirei.

X. fornicatus closely resembles *X. xanthopus* Eichh. but is distinctly smaller ; it should at best only be regarded as a subspecies of the latter. In view, however, of its economic importance as the main pest of tea, specific status should be preserved for the present.

The original distribution of this species was certainly limited to the Indomalayan region, extending from Ceylon to India, Malaya, Indo-China, Sumatra, Java, the Philippine Islands and Formosa including New Guinea. Its present occurrence in Fiji, the New Hebrides and Sandwich Islands may have been caused by human agency.

Formerly a typical insect of the tropical forest with a large number of host plants among native trees, *X. fornicatus* has adapted itself to tea bushes where it does much harm, especially in Ceylon. The present investigations of the Tea Research Institute of Ceylon, particularly those of Dr. Judenko, will provide details of its distribution on this island. It would certainly be worth examining the native food plants in the forests surrounding the plantations to find out if there exist forest trees which can be used as traps for this pest. A list of Ceylonese host plants and notes on the general biology have been given by E. R. Speyer (1923, *Bull. ent. Res.* **14** : 12–16).

Xyleborus comptus Sampson

Sampson, 1919, *Ann. Mag. nat. Hist.* (9) **4** : 111 (♀).

Type locality CEYLON: (*E. E. Green*). Food-plant, *Hevea brasiliensis*.

This species has never been recorded since the original description and is not represented in Dr. Judenko's collection.

Xyleborus validus Eichhoff

♀ Eichhoff, 1875, *Ann. Soc. ent. Belg.* **18**: 202.
♂ Strohmeyer, 1912, *Ent. Mitt.* **1**: 39.

Xyleborus pseudovalidus Eggers, 1924, *Sborn. ent. Odd. nár. Mus. Praze.* **3**: 159 (♀).

The differences used by Eggers to separate *X. validus* Eichh. and *X. pseudovalidus* Egg. do not hold good when longer series are examined. The types of both species are in my collection. *X. praevius* Blandf. has been misinterpreted by Nijsima (1909, *J. Coll. Agric. Tohuku Imp. Univ., Sapporo* **3**: 173) and also belongs to *X. validus*.

Type localities

X. validus ♀ JAPON (*M. Lewis*).
♂, FORMOSA; Fuhosho und Taihorinsho, 1909 (*Sauter*).
X. pseudovalidus ♀, Tenasserim (BIRMA); Fuhosho (FORMOSA).

X. validus seems to be endemic in the Indo-malayan region from Korea to Ceylon, and so far has been reported from Ceylon, India, Burma, Sumatra, Fukien, Formosa, Japan (Kiushiu, Honshiu, Hokkaido) and Korea. Broadleaf trees as well as conifers (*Pinus* and *Abies*) are found as host trees. From Ceylon there exist only some specimens in the Zoologische Museum, Berlin.

Xyleborus semirufus sp. n.

Female.—Reddish-brown, 3·0 mm. long, 2·58 times as long as wide. Somewhat smaller than *X. obliquecauda* Motsch., the anterolateral angles of the pronotum less distinctly developed, the elytral declivity much shorter and more steeply convex and the tubercles on the second interstices smaller.

Front convex, subopaque, minutely punctulate, rather roughly and coarsely punctured, pubescence short, inconspicuous.

Pronotum as wide as long, posterolateral angles rectangular, broadly rounded, sides subparallel on basal third, apex broadly rounded, the anterolateral angles less developed, as in *X. obliquecauda*; summit short behind the middle, apical area steeply convex, finely and densely asperate, basal area short, asperities of apical area continued but gradually decreasing in size on the sides and on the disc indicated there by some minute transverse scratches; pubescence short and inconspicuous. Scutellum of medium size, triangular and shining.

Elytra very feebly wider and 1·6 times as long as pronotum, sides subparallel on basal three-fifths, apex broadly rounded, declivity commencing well behind the middle, rather strongly convex; disc striate punctate, strial punctures of medium size and not closely placed, striae feebly impressed, interstices rather wide and uniseriately very finely punctured, the punctures much more remotely placed than those of the striae; declivity with punctuation less distinct than on the disc, second interstice with two larger tubercles in median third of convexity, a few fine granules above and on sides; apical margin subacute up to seventh interstices.

Types Holotype in British Museum (Nat. Hist.) ; paratype in Coll. Schedl.
Locality CEYLON : Ramboda, 24.ix.1921, common in *Acacia* sp. in this district (*J. P. Jepson*).

Xyleborus interjectus Blandford

♀ Blandford, 1894, *Trans. ent. Soc. Lond.* **1894** : 576–7, 579.
♂ Eggers, 1923, *Zool. Meded.* **7** : 198.

Type localities

♀, JAPAN (*M. Lewis*) ; CHINA : Chusan Is. (*Walker*).
♂, Not stated exactly, one cotype in Coll. Schedl, JAVA, 1915 (*Hagedorn*).

This species seems to have the same type of distribution as *X. validus* Eichh., extending from Japan in the North to Formosa, Indo-China, Malaya, Burma and India. It has also been recorded from Ceylon, Sumatra, Java, Mentawei and the Batoe Is. The two records from Ceylon originate from Blandford (1895, *Ann. Mag. nat. Hist.* (6) **15** : 321) and Green (1912, *Trop. Agriculture, Trin.* **38** : 39). The former author reported *X. validus* from Galle : Kitugalle, Horton Plains ; the latter found it in Ceylon, under blisters of renewed bark of *Hevea*. E. R. Speyer (1923) has given additional Ceylonese host plants, *e.g. Erythrina lithosperma*, *Citrus aurantium*, *Theobroma cacao*, *Aleurites tribola* (candle-nut tree) and *Artocarpus incisa* (bread-fruit tree).

In Dr. Judenko's collection *X. interjectus* was rare. It was taken on the Millawitiya Estate in July-August and October 1956, and in January, 1957.

Xyleborus obliquecauda (Motschoulsky)

Motschoulsky, 1863, *Bull. Soc. Nat. Moscou.* **36** : 513 (♀) (*Phloeotrogus*).
Xyleborus carinipennis Eichhoff, 1868, *Berl. ent. Z.* **12** : 152 (♀).

Type localities

Phloeotrogus obliquecauda CEYLON : de Montagnes de Nura-Ellia.
X. carinipennis CEYLON.

X. obliquecauda has so far only been taken in Ceylon and in Japan (Honshû, Kiushu). It is rather doubtful whether such discontinuous distribution really exists. A specimen I have recently seen originates from CEYLON : Kandy, June 1908 (*G. E. Bryant*). E. R. Speyer mentioned the species from rubber bark.

Xyleborus haberkorni Eggers

Eggers, 1920, *Ent. Bl.* **16** : 43 (♀).

Type locality DEUTSCH OSTAFRIKA : Amani.

The distribution of *X. haberkorni* is limited to the west by East Africa, and to the northeast by Formosa. Within these limits it has been reported from Ceylon, India (Madras, United Provinces and Assam), from Burma Malaya, Java and Formosa. The record from Ceylon given by C. F. C. Beeson in 1930 refers to Avisawella (500 feet) and Peradeniya (1500 feet). In Dr. Judenko's collection this species was rather common on the Millawitiya Estate in 1956 and a few specimens were found in the same year in the Denawake Group and on the Noragalla Estate, in the sticky trap experiments.

Xyleborus costipennis sp. n.

Female.—Dark reddish-brown, brightly shining, 1·8 mm. long, about twice as long as wide. Rather closely allied to *X. flexiocostatus* Schedl but smaller, the elytra more coarsely striate-punctate, the declivity shorter and the ridge-like elevations lower.

Front convex, silky shining, minutely punctulate, rather densely granulate-punctate in the centre, pubescence inconspicuous.

Pronotum wider than long (24 : 22), widest near base, posterolateral angles broadly rounded, sides subparallel on basal fourth, thence rather strongly narrowed in broad curves, apical margin narrowly rounded and somewhat extended in the middle, some fine, low and subequal asperities along this extension; summit distinctly behind the centre, apical area fairly convex and very densely covered with small asperities, basal area short, subshining and with fine transverse ridges representing the strongly reduced asperities of the apical part of the pronotum; pubescence very short, hardly visible. Scutellum minute and obscured by a transverse fringe of scale-like hairs apparently originating on basal margin of pronotum and base of elytra.

Elytra as wide and 1·4 times as long as pronotum, sides parallel to beyond the middle, apex broadly rounded, declivity commencing in the middle, obliquely convex; disc brightly shining, polished, with rows of deep punctures in hardly impressed lines, the interstices flat and each with a row of more remotely placed and minute punctures; on the oblique declivity the striae rather strongly developed, strial punctures distinctly coarser, suture finely carinate throughout, second and third interstices very narrow, much narrower than adjoining striae and each with a somewhat irregular row of minute granules, fourth interstice more strongly carinate and finely granulate in the median part of the declivital face, gradually decreasing in height behind, very low carinae on interstices 5 and 6; apical margin finely carinate up to seventh interstices.

Type in Coll. Schedl.
Locality CEYLON: Denawake Group, 3–8.ii.1957 (*E. Judenko*).

Xyleborus cristatulus Schedl

Schedl, 1953, *Ann. Mag. nat. Hist.* (12) **6** : 300–1 (♀).

Type locality MALAYA: Selangor, Kepong, 1949 (*F. G. Browne*).

A number of specimens captured on the Millawitiya Estate and the Noragalla Estate during 1956–1957 compare very well with *X. cristatulus*, although they are slightly smaller, and with the tubercles of the elytral declivity more weakly developed or indistinct.

Xyleborus tenellus sp. n.

Female.—Reddish-brown, 1·9 mm. long, 2·5 times as long as wide. Probably best compared with *X. cylindripennis* Egg., from which it can be distinguished by the more oblique elytral declivity, the more acute and more angulately rounded apical margin and by the shorter elytral disc.

Front broadly convex, minutely punctulate, therefore subshining, with rather remotely placed fine and setose punctures.

Pronotum somewhat wider than long (22·0 : 20·5), posterolateral angles rectangular and feebly rounded, sides subparallel on basal half, apex very broadly rounded; summit in the middle, apical area convex and densely covered with medium sized asperities, basal

area silky shining, finely, somewhat indistinctly punctured, pubescence inconspicuous except for a fringe of more scale-like hairs between pronotum and elytra. Scutellum not visible.

Elytra about as wide and 1·7 times as long as pronotum, sides parallel in basal half, thence very weakly narrowed, apex broadly feebly angulately rounded, declivity commencing in the middle, gradually convex, apical margin acute, very finely serrate up to seventh interstices; disc with rows of regularly placed small punctures in hardly impressed lines, interstices relatively wide and each with a row of more remotely placed setose punctures becoming minute setose granules on the declivity, striae somewhat more impressed on the latter, punctures in these rows hardly larger than on disc.

Types in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, 11.ii to 16.vii.1956 (*E. Judenko*).

Xyleborus abberrans sp. n.

Female.—Reddish-brown, 2·9 mm. long, 2·5 times as long as wide. Obviously belongs near *X. inaequalis* Schedl, from which it can be distinguished by its larger size, more slender pronotum, more oblique elytral declivity, etc.

Front broadly convex, subshining, minutely punctulate, rather finely and somewhat granulately punctured, the punctures bearing very short and fine hairs.

Pronotum longer than wide (37 : 34), posterolateral angles rectangular and feebly rounded, sides subparallel on basal two-fifths, apex broadly rounded, apical margin armed with 6 subequal pointed asperities; summit in the middle, apical area obliquely convex, densely covered with rather small and low asperities, basal area fairly shining, with a regular punctuation, punctures rather small; pubescence short, inconspicuous. Scutellum of medium size, triangular, shining.

Elytra as wide and 1·3 times as long as pronotum, sides parallel in basal half, thence gradually incurved, apex moderately broadly rounded, declivity commencing in the middle, obliquely convex; disc with rows of fairly regularly placed small punctures in hardly impressed lines, the interstices wide, each with punctures of similar size to those in the striae but their arrangement more irregular, and forming the origin of fine semi-erect hairs; on the declivity the suture feebly elevated, first striae more strongly impressed, strial punctures very small but distinct, interstices with irregular double rows of small setose granules, pubescence distinct all over, somewhat longer on the declivity.

Type in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, 11.ii.1957 (*E. Judenko*).

Xyleborus cognatus Blandford

♀ Blandford, 1896, *Ann. Soc. ent. Fr.* **65** : 19–20.
♂ Hagedorn, 1912, *Rev. Zool. afr.* **1** : 343.

Type localities

♀ INDOCHINE: Mytho (*R. de la Perraudière*) and Saigon (*Delaunay*).
♂ CEYLON.

Since the original description by Blandford other localities have been reported from Indo-china, India, Malaya, Sumatra, Java, New Guinea, Bougainville and the Fiji Islands. I have also seen specimens from North Andaman, 19.ii.1929 (*B. M. Bathia*), ex *Rhizophora mucronata* (*C. F. C. Beeson*); Sarawak, (*Doria*); N. O. Borneo (*Grabowsky*); PHILIPPINE ISL.: Kolambugan, 30.i.1915 (*Böttcher*); Tenasserim 1830 (*Helfer*); BENGAL: Sunderbans, 22.ii.1912,

ex *Excaecaria agollochia* (*C. F. C. Beeson*); BURMA: Maungmagan, 3–7.xi. 1924 (*R. N. Parker*); and SUMATRA: Sinabang, Sima, xii.1913 (*Edw. Jacobson*). A number of host plants not mentioned above can be found in Beeson, 1941, *Forest Insects of India and the neighbouring countries.*

Dr. Judenko's collection did not include any specimens of this species. In Ceylon *X. cognatus* attacked young shoots of *Hevea* in 1909, making longitudinal tunnels.

Xyleborus perforans (Wollaston)

♀ Wollaston, 1857, *Cat. Col. Madeira* : 96 (*Tomicus*).
♂ Blandford, 1893, *Report on destruction of Beer-Casks in India* : 12. London.

Bostrichus duponti Montrouzier, 1858, *Ann. Soc. ent. Fr.* **1** (4) : 265 (♀).
Bostrichus testaceus Walker, 1859, *Ann. Mag. nat. Hist.* (3) **3** : 260 (♀).
Anodius tuberculatus Motschoulsky, 1863, *Bull. Soc. Nat. Moscou* **36** : 511 (♀).
Xyleborus kraatzi Eichhoff, 1868, *Berl. ent. Z.* **12** : 152 (♀).
Xyleborus immaturus Blackburn, 1885, *Trans. Roy. Soc. Dublin* **3** : 192–4 (♀).
Xyleborus immaturus Blackburn *in* Perkins, 1900, *Fauna Hawaiiensis* **2** (3) : 178 (♀).
Xylopertha hirsuta Lea, 1893, *Proc. Linn. Soc. N.S.W.* **8** : 321 (♀).

Type localities

Tomicus perforans " Inhabits the wine staves in Funchal ".
B. duponti NOUVELLE CALEDONIE.
B. testaceus CEYLON.
A. tuberculatus CEYLON, INDIA.
X. kraatzi CEYLON.
X. immaturus SANDWICH ISL.: Oahu; HAWAII: various localities.
X. hirsuta NEW SOUTH WALES: Tamworth, Cootamundra, Tweed and Richmond River.

X. perforans is by far the most common xylo-mycetophagous Scolytid in the Indomalayan region, inhabiting the mainland as well as all the islands so far investigated. It has also been reported throughout the Australian region and from all the more important Pacific islands. In the West it is rather common in Madagascar, Mauritius and the Seychelles, but rare in Eastern Africa. It is occasionally found on the Western border of this continent, in Madeira and the West Indian islands.

From Ceylon the only exact locality has been reported by Blandford (Dikoya, Bangoda) although E. R. Speyer mentioned a distribution of this species from sea-level to altitudes up to 5000 feet. In the air-migration experiment at the Millawitiya Estate, *X. perforans* was the most common Scolytid after *Poecilips myristicae* Roepke, with 486 specimens collected between 3.v.1956 and 8.v.1957. It was on the wing throughout the years 1956 and 1957, more numerous during the months with low rainfall, probably because of a decrease in suitable breeding material. Other localities where the species has been found were the Noragalla Estate, the Danawake Group and the Hedgefield Estate.

X. perforans is extremely polyphagous, infesting nearly all broadleaf trees of the region it inhabits. This will certainly also hold true for Ceylon. E. R. Speyer reported it from *Hevea brasiliensis*, *Grevillea robusta* and *Cedrela toona*.

Xyleborus mascarensis Eichhoff

♀ Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 372–3 (*Xyleborus affinis* Eichh. var. *β mascarensis*).

♂ Hopkins, 1915, *Rep. U.S. Dep. Agric.* **99** : 61, 64 (*Xyleborus sacchari*).

Xyleborus affinis var. *α parvus* et var. *γ, fusco-brunneus* Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 372–3.

Xyleborus subaffinis Eggers ♀, ♂, 1933, *Trav. Lab. Ent., Mém. Mus. nat. Hist. nat., Paris*, **1** : 36, 37.

Xyleborus proximus i.p. Eggers, *I. Mission G. F. De Witte* (*Parc Nat. Albert*), 1933–1935, **43** (10) : 66.

Type localities

X. affinis var. β, mascarensis St. Mauritzio.

X. affinis var. α, parvus Columbia.

X. affinis var. γ, fusco-brunneus Brasilia.

X. sacchari West Indies : St. Vincent.

X. subaffinis Franz. Guyana : Nova Chantier, St. Laurent du Maroni : Brasil, Sao Paulo.

X. proximus Congo Belge : Eala, 1938.

X. mascarensis is about as common in the western hemisphere as *X. perforans* in the eastern. It inhabits the entire tropical and subtropical regions of Africa and the New World and extends eastwards into the Indomalayan region and the Pacific islands, but gradually becoming more and more scarce.

From Ceylon *X. mascarensis* has been reported by E. R. Speyer (1923) under the name of *Xyleborus affinis* Eichh., attacking there *Hevea brasiliensis*. Dr. Judenko's collection contains a fair number from the Millawitiya Estate, collected during the years 1956–1957 ; also a few specimens from the Hedgefield Estate (21.v.1956), the Noragalla Estate (11.x–12.xii.1956) and the Denawake Group (23.ii.1956). It is one of the most polyphagous Scolytids, but no host-plants are known from Ceylon.

Xyleborus indicus Eichhoff

♀ Eichhoff, 1878, *Stettin. ent. Ztg.* **39** : 392.

♂ Schedl, 1950, *Rev. franç. Ent.* **17** : 214.

Xyleborus indicus var. *subcoriaceus* Eggers, 1927, *Philipp. J. Sci.* **33** : 92 (♀).

Type localities

X. indicus ♀ Java.

♂, Cote d'Ivoire : Adiopodoumé, 1949 (*M. H. Jover*).

X. indicus var. *subcoriaceus*, Philippinen : Mount Sonto Tomas (*Schultze*).

X. indicus is distributed over all tropical Africa south of the Sahara, Madagascar, the Indomalayan region from Ceylon to the Philippine Islands, and New Guinea, Australia, the Bismarck Archipelago and the New Hebrides.

In Dr. Judenko's experiments it was about as common as *X. mascarensis* Eichh., but has only been collected at the Millawitiya and the Noragalla Estates, mainly in 1956.

Xyleborus rodgeri Beeson

Beeson, 1930, *Indian For. Rec.* **14** (10) : 213, 223, 253–4, 270–1 (♀).

Type locality Andamans : Middle Island, Dec. (*B.M.B.*).

The types cited by Beeson originate from *Myristica andamanica*, *Pterospermum acerifolium* and *Terminalia procera*. On the sticky traps at the Millawitiya Estate three specimens were captured between April and September 1956, which agree perfectly with two cotypes in my collection.

Xyleborus alpha Beeson

Sampson, 1923, *Ann. Mag. nat. Hist.* (9) **11** : 289 (♀ *Xyleborus bicolor* Blandf. var. α).
Beeson, 1929, *Insects of Samoa* **4** (Col.) (4) : 239 (**nom. nov.** for *X. bicolor* Blandf. var. α Sampson).

Type locality

India : Sunderbans Div., (*C. F. C. Beeson*).

This species has also been reported by Beeson from various localities in Bengal and Assam. The Indian hostplants so far known are *Chrysophyllum roxburghii*, *Shorea assamica*, *S. robusta* and *Vatica lanceofolia*.

As mentioned by Speyer (1912, *Bull. ent. Res.* **14** : 19) *X. bicolor*, which occurs in Ceylon (Ratnapura) in dead branches of *Albizzia moluccana*, must be referred to *Xyleborus alpha*. Two of the type specimens of *X. alpha* in the British Museum from Sunderbans (on the wing in Sundri-jungle), which were labelled by W. Sampson *X. bicolor* var. *varius*, have been compared with a single specimen from the Millawitiya Estate taken on 12.ii.1957 and coincide perfectly.

Xyleborus similis Ferrari

♀ Boheman, 1858–59, *Voyage de K. Svenska Fregatten Eugenies Resa* 1851–1853 (Zool.) **1** : 88 (*Bostrichus ferrugineus*).
Ferrari, 1867, *Die Forst-und baumzuchtschädlichen Borkenkäfer* : 23–24 (*Xyleborus similis*, nom. nov.).
♂ Schedl, 1942, *Tijdschr. Ent.* **85** : 47–48.

Anodius denticulatus Motschoulsky, 1863, *Bull. Soc. Nat. Moscou* **36** : 512 ♀ (pars ♂).
Xyleborus dilatatus Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 64, 393–4, 484 (♀).
Xyleborus parvulus Eichhoff, 1868, *Berl. ent. Z.* **12** : 152 (♀).
Xyleborus parvulus var. Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 322 (♀).
Xyleborus submarginatus Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 223–4 (♀).
Xyleborus bucco Schaufuss, 1897, *Tijdschr. Ent.* **40** : 212–4 (♀).
Xyleborus capito Schaufuss, 1897, *Ibid.* **40** : 215 (♀).

Type localities

Bostrichus ferrugineus Insulae Keelings.
X. parvulus Ceylon.
X. dilatatus Africae insula St. Mauritzius.
X. parvulus var. Blandford Ceylon : Kitugalle, 1700 feet (*G. Lewis*).
X. submarginatus India : Belgaum (*Andrewes*) ; Ceylon : *Thwaites* dans Oxford Mus. ; Celebes (*Wallace*) ; New Guinea : Dorey (*Wallace*).
X. bucco Sechellen : La Digue.
X. capito Philippinen : Aus Eichhoffs sammlung, bezeichnet : Oberthür.

X. similis is widely distributed over the Indomalayan region and has been reported from Ceylon, India, Burma, Malaya, Indo-China, Sumatra, Java,

Batoe Island, Mentawai, Engano, Celebes, the Philippines and Formosa. It also has been found in New Guinea, Australia, the Key Islands, Samoa, Tahiti, the Solomon Islands, Admiralty Islands and Christmas Island. Westwards of Ceylon it also occurs in Mauritius, the Seychelles, Madagascar, East Africa and Cameroons.

In Ceylon it has been reported from Paradeniya and the neighbourhood of Colombo. Dr. Judenko's collection contained over three hundred specimens from the Millawitiya Estate, a few from the Noragalla Estate, the Denawake Group and the Hedgefield Estate (1956–1957).

The variation in size of this extensive material was remarkable, the females measuring from 2·0 to 2·4 mm. in length, emphasizing that it is impossible to separate different species on the basis of size, as has been done in the past. Other variations, also very gradually changing, have been found in the proportions of the pronotum and elytra, the curvature of the anterior margin of the pronotum, with or without distinct antero-lateral angles, and in the sculpture of the elytra. In general the total variation is about the same as in *X. ferrugineus* Fab., a species which replaces *X. similis* in the greater part of Africa and in the New World.

The number of known host plants of *X. similis* is rather too large to be included here and this polyphagous habit also certainly applies in Ceylon, although so far only *Hevea brasiliensis* has been reported.

It was not possible to prove that *X. similis* flies more actively at certain times of the year than does *Poecilips myristicae* Roepke. In the air-migration experiment already mentioned, specimens were caught in nearly equal numbers throughout the year without definite correlation to rainfall. There was also no distinct preference for certain heights. *X. similis* certainly breeds in the forests near by, and had only passed the tea plantations on its way to new breeding grounds.

Xyleborus exiguus (Walker)

Walker, 1857, *Ann. Mag. nat. Hist.* **3** : 260 (*Bostrichus*).

Xyleborus muriceus Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 506 (♀).

Type localities

X. exiguus Ceylon.
X. muriceus Asiae India Orientalis : a dom. Kraatz communicatus.

X. exiguus seems to be endemic in the whole Indomalayan region and in large parts of the Pacific. It is known to occur in various host plants in Ceylon, India, Burma, the Andaman Islands, Malaya, Sumatra, Java, the Philippines, Buru Island, New Guinea, Goodenough Island, New Britain, the Solomon Islands, the Fiji Islands, Samoa and Tahiti.

E. R. Speyer has reported this species as occurring in Ceylon from 1000 to 3000 feet, mainly in *Hevea brasiliensis*. In the Millawitiya Estate it was one of the commonest species of the genus throughout the 1956 and 1957 experiments and it has also been collected on the Hedgefield and Noragalla Estates.

Xyleborus artestriatus Eichhoff

Eichhoff, 1878, *Ratio, descriptio, emendato eorum Tomicinorum* : 507 (♀).

Xyleborus laticollis Blandford, 1896, *Trans. ent. Soc. Lond.* **1896** : 226 (♀).

Type localities

X. artestriatus Patria : Asiae India orientalis.
X. laticollis Hab. India : Kanara (*Andrewes*).

This Indomalayan species has been reported from Ceylon (without exact locality (*E. R. Speyer*), India (Bombay, Central Provinces, United Provinces, Bengal, Assam), Burma, Malaya, Sumatra, Java, Borneo, Nias, and Queensland in Australia. In Burma it has been found in *Prunus puddum*, in India in *Eugenia jambolana*, *Heritiera fomes*, *Lannea grandis*, *Mallotus philippinensis*, *Phyllanthus emblica*, *Odina wodier*, *Semecarpus anancardium* and *Shorea robusta*. Dr. Judenko's collection did not contain any specimens of this species.

Xyleborus judenkoi sp. n.

Female.—Yellowish-brown, 1·8 mm. long, 2·7 times as long as wide. Intermediate between *X. nutans* Schedl and *X. pullus* Schedl ; the elytral declivity about as oblique as in the former species but not so abruptly bent down and less steep than in the latter.

Front convex, rather shining, with some rather coarse punctures bearing short erect setae.

Pronotum somewhat longer than wide (21·0 : 19·5), posterolateral angles rounded, sides parallel in basal half, thence obliquely incurved to the moderately broadly rounded apex ; summit distinctly before the centre, anterior area obliquely convex and covered with small asperities, basal area shining, with very fine scattered punctures ; some long erect hairs on sides and anterior area. Scutellum small, triangular.

Elytra but feebly wider and 1·57 times as long as pronotum, sides parallel to somewhat beyond the middle, apex broadly rounded, declivity commencing in the middle and gradually convex ; disc with rows of medium sized punctures in hardly impressed lines (except the first ones which are distinctly so), each interstice with a row of more irregularly placed and much finer punctures ; towards the declivity these punctures replaced by minute granules, which, on the declivity itself, are setose, much larger and less closely placed ; first interstice on each side devoid of granules but with a few minute punctures, some additional fine granules along apical margin.

Types in Coll. Schedl.
Locality Ceylon : Millawitiya, 2.iv–24.ix.1956 (*E. Judenko*).

Two specimens, unfortunately not in the best condition, from Sarawak : Satefak, 17.v.1956, *ex* dying tree (*F. G. Browne*, Nr 5493) apparently belong to the same species.

Xyleborus tunggali Schedl

Schedl, 1936, *J.F.M.S. Mus.* **18** : 32 (♀).

Type localities

Malaya : Pahang, Rotan Tunggal For. Res., ex *Shorea robusta* ; Pahang, Bukit Kajang For. Res., ex *Canarium* sp. ; Selangor, Kanching For. Res., ex Kapur (*Dryobalanops aromatica*) (all *F. G. Browne*).

Since the original description more reports of localities in Malaya have been published, extending the list of hostplants to include *Shorea laevis*, *S. parvifolia* and an unidentified Burseraceae. Dr. Judenko's collection contains specimens from the Millawitiya Estate, collected between 12.vi and 29.viii.1956.

Xyleborus figuratus sp. n.

Female.—Reddish-brown, 1·87 mm. long, 2·7 times as long as wide. Allied to *X. agnatus* Egg., but somewhat smaller, the elytral declivity shorter, more abruptly oblique, the lateral margins less rounded and fine tubercles larger.

Front convex, minutely punctulate, rather regularly covered with setose punctures.

Pronotum distinctly longer than wide (24 : 20), posterolateral angles feebly rounded, sides parallel on basal half, apex moderately broadly rounded; summit in the middle, anterior area convex, very finely and densely asperate, basal area shining, very finely and rather remotely punctured; pubescence restricted to anterior area, short and erect. Scutellum minute, difficult to see.

Elytra as wide and 1·3 times as long as pronotum, cylindrical, sides parallel on basal three-fifths, apex broadly rounded and feebly impressed when viewed from above, declivity very short, obliquely truncate with apical margin subcarinate below, more rounded above; disc with rows of rather fine punctures, those of the first row larger, more irregular in arrangement and in feebly impressed striae, interstices narrow and with scattered fine punctures; towards the declivity all interstices with a few minute granules; declivital face with the suture slightly elevated, very narrow above, distinctly wider in the middle, first striae distinctly impressed, second interstice widened in the middle, with three larger tubercles, one at the beginning of the oblique face, another about half way down, a third shortly before the apical margin, a few smaller tubercles laterally on the space of the third and fourth interstices.

Types in Coll. Schedl.

Localities Ceylon: Millawitiya Estate, 10–17.iv, 16–24.vii, 2–27.x.1956, 26.ii.1957; Denawake Group, 8–16.ii.1956 (*E. Judenko*).

Xyleborus rimulosus sp. n.

Female.—Pitchy black, 3·0 mm. long, 2·7 times as long as wide. Apparently allied to *X. decumans* Schedl, but the elytral disc very strongly striate-punctate, the sutural interstices strongly widened towards the declivity and the armature on the latter of a different type.

Front subopaque, strongly convex, rather roughly and coarsely punctured, pubescence sparse and inconspicuous.

Pronotum distinctly longer than wide (38 : 33), widest in the middle, posterolateral angles rounded, sides subparallel on basal half, broadly rounded at apex; summit in the middle, apical area fairly convex, very densely and rather finely asperate, a minutely punctulate ground sculpture; pubescence restricted to anterior area, short and erect. Scutellum comparatively small, triangular and shining.

Elytra as wide and 1·3 times as long as pronotum, sides parallel on basal half, thence feebly narrowed, apical margin moderately broadly rounded, declivity commencing somewhat behind the middle, obliquely convex; disc polished and shining, strongly striate-punctate, the striae and punctures not reaching the base, striae, especially the first, deepened towards the declivity, first interstice strongly widened towards declivital face, with a few minute punctures in basal half, and with a strong pointed tubercle at upper margin of declivity, other interstices each with an irregular row of minute punctures; first interstices becoming narrower in upper third of declivital face, thence gradually widened, in lower third with a large tubercle on each side and thence narrowed again; second interstice following curvature of first but of the same width throughout and with a few small granules all along, third interstice similar to second but the granules larger above; a few very small granules along apical margin below.

Type in Coll. Schedl.

Locality Ceylon: Millawitiya Estate, 24–31.vii.1956 (*E. Judenko*).

Xyleborus dentatus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **17** : 323 (♀).

Type locality CEYLON : Dikoya, Hadley Tea Estate, 3800–4200 feet ; Bogawantalawa, 4900–5200 feet (*G. Lewis*).

This species has also been reported from Malaya and recently (1941) by C. F. C. Beeson again from Ceylon ex *Gordonia zeylanica* but without exact locality. Dr. Judenko's collection did not contain any specimens.

Xyleborus pumilus Eggers

Eggers, 1923, *Zool. Meded.* **7** : 209 (♀).

Type locality SUMATRA, JAVA.

This species seems to be endemic in the Indomalayan region, having been reported from Assam, Tenasserim, the Andamans, Malaya, Sumatra, Java, and from Luzon in the Philippines. The following host plants are known : from India, *Artocarpus chaplasha*, *A. lakoocha*, *Ficus infectoria*, *Sterculia campanulata*, *St. villosa*, *Terminalia bialata*, *T. manni* ; from Malaya, *Sloetia sideroxylon* ; and from Java, " nangsi utan ", most probably *Villebrunnea rubescens* Bl.

Dr. Judenko's collection contained specimens from the Millawitiya Estate (11–29.ix.1956, and 29.i.1957).

Xyleborus insitivus sp. n.

Female.—Pitchy black, 1·8 mm. long, 3·1 times as long as wide. This new species of the *Xylebori emarginati* is well characterised by the broadly concave elytral declivity, the armature and the broadly rounded apical margin.

Front convex, minutely punctulate, rather coarsely punctured, pubescence short and inconspicuous.

Pronotum much longer than wide (22·0 : 17·5), posterolateral angles rectangular and feebly rounded, sides parallel on basal half, apex broadly rounded ; summit well in front of middle, apical area convex, very densely and very finely asperate, basal area shining and with a rather indistinct fine punctuation ; pubescence restricted to apical area and sides, short and erect. Scutellum triangular, shining impunctate.

Elytra as wide and 1·5 times as long as pronotum, sides parallel on basal half, thence feebly and obliquely narrowed, apex uniformly and broadly rounded, declivity commencing well behind the middle, short, obliquely truncate and broadly concave ; disc with rather indistinct rows of fine punctures, the interstices finely reticulate and apparently uniseriately and finely punctured but the punctures more remotely placed ; apical margin of declivity subacute and very finely granulate, the suture very feebly elevated, punctures of first and second striae larger than on disc, the interstices more coarsely wrinkled ; each elytron with 3 larger tubercles, one on second interstice at beginning of cavity, the second somewhat further down on third interstice, and the third close to apical border also on third interstice, some very small setose granules along side margins.

Types in Coll. Schedl.

Locality CEYLON : Millawitiya Estate, 11.ix–9.x.1956 (*E. Judenko*).

Xyleborus metacuneolus Eggers

Eggers, 1940, *Tijdschr. Ent.* **83** : 150 (♀).

Type locality JAVA : Buitenzorg, 1923.

Other specimens from JAVA originate from Semarang, teak-forest, 26.ii. 1922 (*L. G. E. Kalshoven*, Nr e 612); specimens from the PHILIPPINES: Manila, Luzon, ex *Mangifera indica* (*W. Schultze*) in my collection have formerly been designated *Xyleborus mangiferae* Egg. *in litt.*

Dr. Judenko's collection contained two specimens of *X. metacuneolus*, one from the Millawitiya Estate (24.ix–9.x.1956), and another from the Denawake Group (8–16.ii.1956). It has also been reported from Taihoku, Formosa, by Schedl (1952).

Xyleborus cuneolosus sp. n.

Female.—Dark reddish-brown, 1·9 mm. long, 2·7 times as long as wide. More closely allied to *X. pseudotenuis* Schedl from Brazil but distinctly smaller, the elytra more cuneiform and much more roughly sculptured.

Front shining, broadly convex, with rather fine, not very dense punctuation, pubescence sparse, very short, inconspicuous.

Pronotum longer than wide (23 : 21), posterolateral angles feebly rounded, the sides nearly straight and feebly divergent as far as the middle, apex broadly rounded; summit somewhat in front of centre, apical area convex and very densely covered with small asperities, basal area with very fine but distinct punctuation; pubescence restricted to apical area and sides, very short and inconspicuous. Scutellum small, triangular.

Elytra not quite as wide (20 : 21) and 1·47 times as long as pronotum, widest near base, sides subparallel on basal third, thence rather strongly cuneiform, apex narrowly rounded, declivity commencing after basal third, gradually and obliquely convex; entire elytra very roughly sculptured, densely punctured in lines with practically no interstices between the rows, additionally with some coarse reticulation, the interstices indicated by rows of semi-erect stiff hairs, the latter distinctly longer on first and third interstices of lower part of declivity, third and fifth interstices on apical half of elytra each with a row of pointed fine tubercles, a similar row on first interstices not extending as far back, but tubercles gradually decreasing in size and obsolete near apex.

Type in Coll. Schedl.
Locality CEYLON: Millawitiya Estate, 26.ii.1957 (*E. Judenko*).

Xyleborus mancus Blandford

Blandford, 1898, *Trans. ent. Soc. Lond.* **1898**: 428–9 (♀).

Xyleborus abruptus Sampson, 1914, *Trans. Linn. Soc.* (*Zool.*) **16**: 388 (♀).
Xyleborus mancus var. *formosanus* Eggers, 1930, *Indian For. Rec.* **14**: 10–11 (♀).

Type localities

X. mancus CEYLON: (*E. E. Green*).
X. abruptus SEYCHELLES: Mahé, high forest of Morne Blanc and from near Morne Blanc, 1908; Cascade Estate, *ca.* 1000 feet, 1909 (*all Percy Sladen Trust Expedition*).
X. mancus var. *formosanus* FORMOSA: Taihoko, 1916 (*M. Maki*).

X. mancus is distributed over a wide area, ranging from East Africa, to Madagascar, the Seychelles, Ceylon, South India, Malaya, Sumatra, Java to the Philippine Islands and Formosa. C. F. C. Beeson (1941) gives a good number of hostplants from the Indomalayan region and also some notes on the biology of this species.

Dr. Judenko's collection contained two specimens from the Millawitiya Estate (3–10.vii and 7.xii.1956).

Xyleborus eugeniae Eggers

Eggers, 1930, *Indian For. Rec.* **14** (9) : 7 (♀).

Type locality India : United Provinces, Lachiwala, Dehra Dun, aus *Eugenia jambolana*, 1923 (*C. F. C. Beeson*).

A single specimen from the Millawitiya Estate (26.ii.1957 (*E. Judenko*)) corresponds perfectly with cotypes in my collection.

Xyleborus doliaris sp. n.

Female.—Dark reddish-brown, 2·0 mm. long, twice as long as wide. Allied to *X. cylindrotomicus* Schedl but smaller, the pronotum with a distinct subapical constriction, no visible scutellum, a densely rather irregularly punctured elytral disc, margin of truncate declivity carinate and elytral face strongly striate-punctate.

Front broadly convex, subopaque, minutely punctulate, indistinctly punctured, pubescence short, inconspicuous.

Pronotum wider than long (26·5 : 24·0), posterolateral angles rectangular and very feebly rounded, sides subparallel on basal two-fifths, apex rather broadly rounded, with distinct subapical constriction, summit in the middle, anterior area steeply convex, densely covered with small asperities, basal area brightly shining and finely distinctly punctured ; a short pubescence restricted to the anterior area. Scutellum not visible.

Elytra distinctly wider (28·0 : 26·5) and 1·4 times as long as pronotum, widest at commencement of declivity, sides straight in basal three-fourths, apex broadly rounded, declivity short, obliquely truncate, the margin finely but highly carinated all round and furnished with a seam of short erect hairs ; disc brightly shining, moderately densely covered with a fine punctuation and some transverse wrinkles, punctures of striae not clearly distinct from those of interstices ; truncate face of declivity broadly convex, very clearly and rather strongly striate-punctate, the interstices without distinct punctuation.

Type in Coll. Schedl.
Locality Ceylon : Denawake Group, 23.ix.1957 (*E. Judenko*).

Xyleborus seminitens Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* **15** : 322 (♀).

Type locality Ceylon : Dikoya, Hadley Tea Estate, 3800–4200 feet (*G. Lewis*).

This species has never been reported since the original description was published, and there were no specimens in Dr. Judenko's collection. C. F. C. Beeson, in his *Forest Insects of India and neighbouring countries*, mentions *Calophyllum walkeri* as a host plant in Ceylon.

Cnestus Sampson

Sampson, 1911, *Ann. Mag. nat. Hist.* **8** : 383.

Cnestus magnus Sampson

Sampson, 1911, *Ann. Mag. nat. Hist.* **8** : 383 (♀).

Type locality ?CEYLON.

This species has been reported once more from Ceylon, living in branches of *Albizzia moluccana* (Green, 1912, *Trop. Agriculture, Trin.* **38** : 39), and C. F. C. Beeson (1941, *Forest Insects of India and the neighbouring countries*) records it from the same island, breeding there in *Chloroxylon swietenia*, *Swietenia macrophylla* and *S. mahogoni*. No specimens were found in Dr. Judenko's collection.

Eccoptopterus Motshoulsky

1863, *Bull. Soc. Nat. Moscou* **36** : 515.

Platydactylus Eichhoff, 1886, *Not. Leyden Mus.* **8** : 25.
Eurydactylus nom. nov. Hagedorn, 1909, *Dtsch. ent. Z.* **1909** : 733.

Eccoptopterus sexspinosus Motschoulsky

♀ Motschoulsky, 1863, *Bull. Soc. Nat. Moscou* **36** : 515–6.
♂ Eggers, 1927, *Philipp. J. Sci.* **33** : 102 (*Xyleborus*).

Type localities

♀ CEYLON : Montagnes de Nura-Ellia.
♂ INDIEN : Dehra Dun, U.P. ; PHILIPPINEN : Luzon, Province Camarines Sur, Mount Isarog.

The present distribution covers an area extending from the tropical parts of Africa eastwards throughout the Indomalayan region to Australia and the temperate parts of Japan. From Ceylon *E. sexspinosus* has been collected by E. E. Green on *Theobroma cacao* (Blandford, 1898, *Trans. ent. Soc. Lond.* **1898** : 425) and the George Lewis collection from this island contained specimens from Dikoya, Hadley Tea Estate, 3,800 to 4,200 feet. During Dr. Judenko's experiments specimens were captured on the Millawitiya Estate from 27.iii to 11.ix.1956 and from the Galbode Estate on 29.ii.1956.

A complete list of the numerous hostplants outside Ceylon and full details of the distribution will be published elsewhere.

B. Family PLATYPODIDAE

Platypus Herbst

Herbst, 1793, *Natursystem aller bekannten in-und ausländischen Insecten* **5** : 128.

Platypus furcatus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 325 (♂♀).

Type locality CEYLON : Dikoya, Hadley Tea Estate, 3800–4200 feet (*G. Lewis*).

This species has so far been known only from Ceylon where it attacks *Acacia decurrens*, *A. melanoxylon*, *Calophyllum walkeri*, *Cupressus macrocarpa*,

Elaeocarpus serratus, *Eucalyptus robusta*, *Gordonia zeylanica*, *Litsaea zeylanica* and *Michelia nilagirica*. There were no specimens in Dr. Judenko's collection.

Platypus solidus Walker

♂ Walker, 1858, *Ann. Mag. nat. Hist.* (3) **2** : 286.
♀ (nec ♂) Chapuis, 1866, *Monographie des Platypides* : 265 (*Platypus pilifrons*).

Platypus caudatus Motschoulsky, 1863, *Bull. Soc. Nat. Moscou* **36** : 509 (♂).
Platypus walkeri Chapuis *in litt.* (Schedl, 1937, *Ent. Bl.* **33** : 40).

Type localities

P. solidus Ceylon.
P. pilifrons Du continent et de L'Archipel indiens.
P. caudatus Ceylon : Montagnes de Nura-Ellia.
P. walkeri Ceylon.

P. solidus is widely distributed through the entire Indomalayan region, extending on the continent from India to Tonkin. It occurs also in Korea, and has been reported from all the larger islands between Ceylon and Formosa. From the Pacific region there are records from the Dammer Islands, New Guinea, the Aru Islands, Australia, the Solomons and Guam. A large number of hostplants are already known and more serious attacks are recorded on *Hevea brasiliensis* in Ceylon and Sumatra. The George Lewis collection, elaborated by Blandford in 1895, contained specimens from Ceylon : Dikoya, Hadley Tea Estate, 3800–4200 feet. According to Speyer, *P. solidus* has also attacked sawn timber of *Terminalia belerica* in Ceylon.

Platypus doonae (Beeson)

Beeson, 1937, *Indian For. Rec.* (n.s.) **3** (3) : 99 (♂♀) (*Crossotarsus*).

Type locality Ceylon : S.A.P., Ratnapura, Mawagankanda, 500 feet 1934 (*Gauri Dutt*), ex *Doona zeylanica* and *Dipterocarpus zeylanicus* ; Murambekanda, 1934, *ex* mal (*same collector*).

No other records available.

Platypus saundersi (Chapuis)

Chapuis, 1866, *Monographie des Platypides* : 80 (♂♀). Sexes reversed, as stated by Chapuis. (*Crossotarsus*).

Type localities Des îles Célèbes et de Borneo : Coll. de Mr. Wallace.

P. saundersi is endemic in the Indomalayan region and has been reported from Ceylon, India, Assam, Bengal, Burma, Malaya, Tonkin, Sumatra, Java, Celebes, Borneo and the Philippines. It has also been found in New Guinea and the Fiji Islands. This species is also said to damage *Theobroma cacao* and to attack *Mangifera indica* in the Western Province of Ceylon (Speyer, 1923).

Platypus venustus (Chapuis)

♀ Chapuis, 1866, *Monographie des Platypides* : 88 (♂ lege ♀) (*Crossotarsus*).
♂ Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 324 (*Crossotarsus*).

Type localities

♀ De l'île de Ceylan. Coll. de Mr. Boheman.
♂ Ceylon : Dikoya, Hadley Tea Estate, 3800–4200 feet (*G. Lewis*).

The only other specimen I have seen originated from S.O. Borneo (*Grabowsky*). C. F. C. Beeson in his *Forest Insects of India and the neighbouring countries* gives for Ceylon the following hostplants : *Acacia decurrens*, *Cupressus macrocarpa*, *Elaeocarpus serratus*, *Eugenia sp.*, *Gordonia zeylanica*, *Litzaea zeylanica* and *Michelia nilagirica*. There were no specimens in Dr. Judenko's collection. E. R. Speyer took a single female from a gallery in a rubber tree (*Hevea brasiliensis*) in Passara in October 1917.

Platypus venustus subsp. *venustulus* (Beeson)

♂ Beeson, 1937, *Indian For. Rec.* (n.s.) **3** : 85 (*Crossotarsus*).
♀ Schedl, 1942, *Kolon.-forstl. Mitt.* **5** : 205.

Type localities

♂ Ceylon : Mawagankanda, Ratnapura, 500 feet, 1934 (*Gauri Dutt*) ex *Doona zeylanica*, *Semacarpus gardneri* and *Warmia triquetra*.
♀ Malaya : Rotan Tunggal F. R., 1932 (*F. G. Browne*).

No other record.

Platypus transformis Schedl

Schedl, 1936, *J.F.M.S. Mus.* **18** : 16 (♂).

Type locality Malay Peninsula : Selangor : Kerling Res., "Kapur" (*Dryobalanops aromatica*), under bark, 1930 (*M. L. Webber*) ; Pahang : Temerloh, 1934, in living *Shorea leprosula* (*E. C. Foenander*).

One specimen was collected on the Millawitiya Estate on 2.iii.1957.

Platypus latifinis Walker

♂ Walker, 1859, *Ann. Mag. nat. Hist.* (3) **3** : 261.
♀ Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 327–8.

Platypus excavatus Chapuis, 1866, *Monographie des Platypides* : 280 (♀).

Type localities

P. latifinis ♂, Ceylon. ♀, Ceylon : Kitugalle, 1700 feet (*G. Lewis*).
P. excavatus De l'île de Ceylan. Coll. du Musée de Berlin.

C. F. C. Beeson (1941, *Forest Insects of India and the neighbouring countries*) mentions this species from Ceylon and South India, calling attention to the following host-plants : *Bombax malabaricum*, *Diospyros paniculata*, *Doona zeylanica*, *Eugenia jambolana*, *Ficus asperrima*, *Lannea grandis*, *Mangifera indica*, *Terminalia belerica* and *Terminalia paniculata*. There were no specimens in Dr. Judenko's collection.

Platypus lepidus Chapuis

Chapuis, 1866, *Monographie des Platypides* : 282 (♂♀ = ♀♂).

Type localities Des îles Célèbes, des îles Moluques, des Philippines. Coll. MM. Wallace, Janson, Dohrn.

P. lepidus is widely distributed over the Indomalayan region from Ceylon (without exact locality) to Formosa in the North and New Guinea in the East A large number of host-plants are reported by C. F. C. Beeson (1941). E. R. Speyer (1923) found the species once in Nawalapitiya in August 1917, at 2000 feet, in the trunk of a rubber tree (*Hevea brasiliensis*) previously killed by the fungus *Diplodia*, and also made some observations on the type of galleries of this species.

Platypus uncinnatus Blandford

Blandford, 1895, *Ann. Mag. nat. Hist.* (6) **15** : 327–8 (♀♂)

Type localities Hab. Ceylon : Dikoya, Hadley Tea Estate, 3800–4200 feet; Bogawantalawa, 4900–5200 feet ; (*G. Lewis*). India : Begaun (*Andrewes*).

Speyer (1923) mentioned this species from Maskeliya (4000 feet), *ex* ringed toona tree (*Cedrela toona*) and drew attention to Rutherford's observations on the attack on trunks of tea bushes (*Camilla thea*) in Haputala (4000 feet, v. 1913). Beeson reports a good number of host trees from India.

Crossotarsus Chapuis

Chapuis, 1866, *Monographie des Platypides* : 44–50.

Crossotarsus minax (Walker)

♂ Walker, 1858, *Ann. Mag. nat. Hist.* (3) **2** : 286 (*Platypus*).
♀ Chapuis, 1866, *Monographie des Platypides*, 71–72.

Type locality ♂ Ceylon. ♀ De l'île de Ceylan.

C. minax has also been reported from South India and Beeson in his *Forest Insects of India* (1941) gives a long list of host-plants observed there and in Ceylon. No specimens were included in Dr. Judenko's collection.

According to Speyer (1923) *C. minax* attacks *Mangifera indica*, *Theobroma cacoa* and diseased *Hevea brasiliensis* in Ceylon.

Diacavus Schedl

Schedl, 1939, *J.F.M.S. Mus.* **18** : 363.

Diacavus albipennis (Motschoulsky)

Motschoulsky, 1858, *Etudes Entomologiques* **7** : 68 (♀) (*Genyocerus*).

Type locality Ceylon

This doubtful species has never since been reported and the type is lost. More recently Strohmeyer (1942, *Arb. morph. taxon. Ent.* **9** : 284–288) described another species of *Diapus* using, probably intentionally, the same specific name and stating at the same time that it may eventually prove that both

species are the same. As the types of Motschoulsky's species no longer exist, such proof can never be established with more accuracy. It therefore seems advisable to regard his description as the basis for Motschoulsky's *Diapus* (*Genyocerus*) *albipennis*. On the basis of the insertion of the antennae and the shape of the male abdomen *albipennis* must be transferred into the genus *Diacavus* Schedl. Strohmeyer's type specimens originate from Simaloer, an island west of Sumatra.

Diapus Chapuis

Chapuis, 1866, *Monographie des Platypides* : 329–31.

Diapus quinque-spinatus Chapuis

Chapuis, 1866, *Monographie des Platypides* : 334–5 (♂♀ = ♀♂).

Type localities Des îles Célèbes, de l'île Bornéo, de l'île de Morty, de la Nouvelle-Guinée. Coll. de MM. Wallace et Janson.

The range of distribution of this species is extremely wide, reaching from Central Africa to Samoa and the Fiji Islands and from the Philippines south to Sumatra. From Ceylon it has been reported once, but without exact locality, by Murayama (1931, *J. Coll. Agric., Hokkaido Imp. Univ., Sapporo* **30** : 203) and no specimens were collected during Dr. Judenko's experiments.

According to Speyer (1923, *Bull. ent. Res.* **14** : 23) a single female of *Platypus cupulatus* Chap. has been found, together with *P. lepidus* Chap., in the trunk of a rubber tree previously killed by *Diplodia* at Nawalapitiya in August 1917, at an altitude of 2000 feet. As the females of *P. cupulatus* are very difficult to interpret, especially without direct comparison with typical specimens and no other records exist, I prefer merely to mention this species.

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ERRATA

p. 128, line 4, for " *glennei* " read " *glenniei* ". pp. 439, line 5 of legend to figure; 449, line 21; 450, line 5 of legend to figure. For " *Leotichus* " read " *Leotichius* "